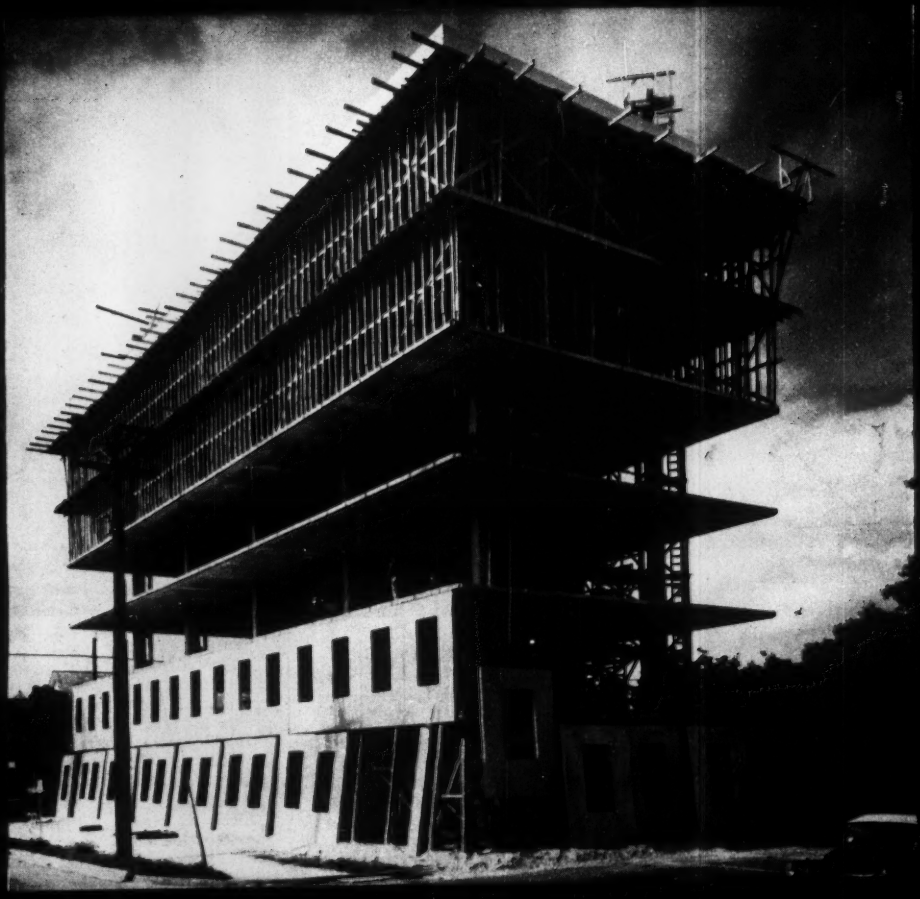
ENGINEERING NEWS-RECORD



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These Siphon WATER STOPS STOP CORROSION too –with BYERS WROUGHT IRON

In constructing these concrete siphons, engineers of the Bureau of Reclamation, U. S. Department of Interior, took decisive steps to forestall excessive maintenance and insure leakproof joints by specifying genuine wrought iron water stops. The main illustration shows a finished section of the siphon laid at the Poudre Supply Canal, near Fort Collins, Colorado. This siphon has an inside diameter of 12'6". The insert photograph shows a section of the 3600-foot Olympus Siphon being poured into a form manufactured by the K-C Construction Supply Company of Denver. This siphon, near Estes Park, Colorado, has an inside diameter of 10'9" and links the Olympus Dam and the Olympus Tunnel. Both siphons are part of the Colorado Big-Thompson Project. Approximately 7500 feet of 3/16" x 8" Byers Wrought Iron plate was used for the water stops on the two siphons. Contractor for both jobs was Peter Kiewit Sons Company of Omaha.

The selection of genuine wrought iron for this service follows accepted design practice, and is endorsed by performance records that testify to the superior durability of this time-tried material.

The complete story of what genuine wrought iron is, how it is made, and why it lasts is condensed in our booklet, THE ABC's OF WROUGHT IRON. Ask for a copy.

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WHY GENUINE WROUGHT IRON LASTS

This notch-fracture test specimen illustrates the unusual fibrous structure of genuine wrought iron—which is responsible for the unusual corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

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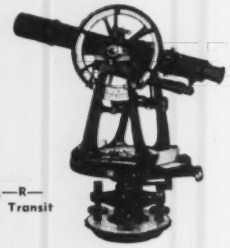

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 JUNE 7, 1951 No. 23

WALDO G. BOWMAN
Editor

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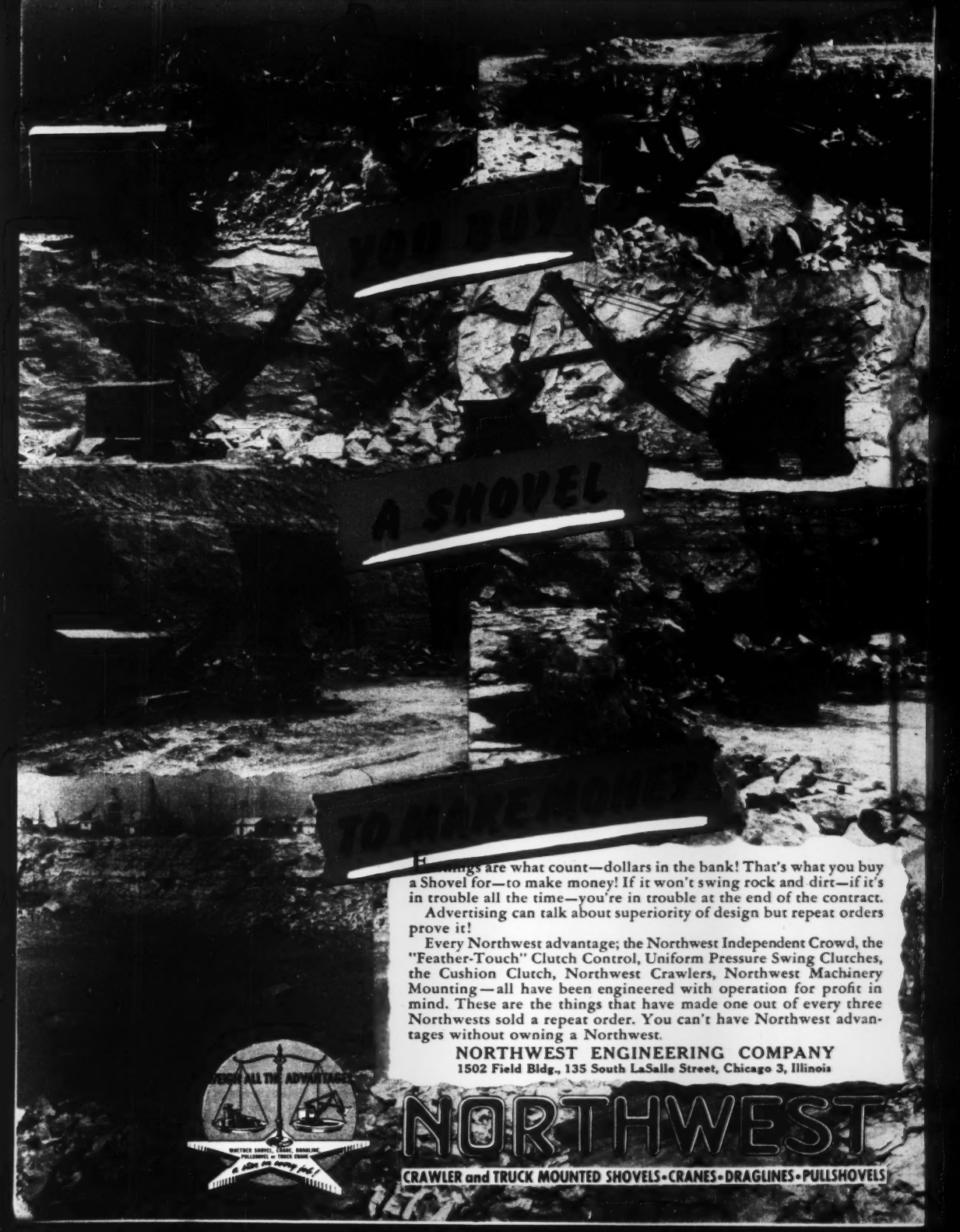

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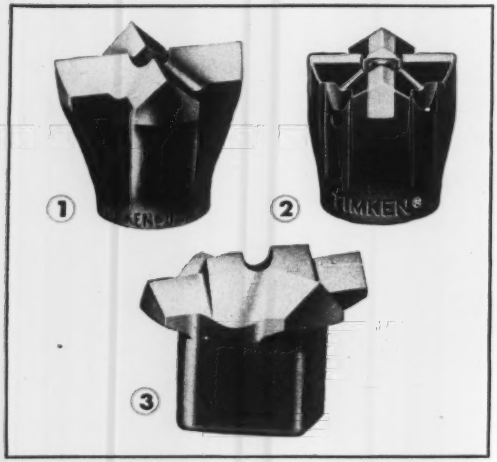

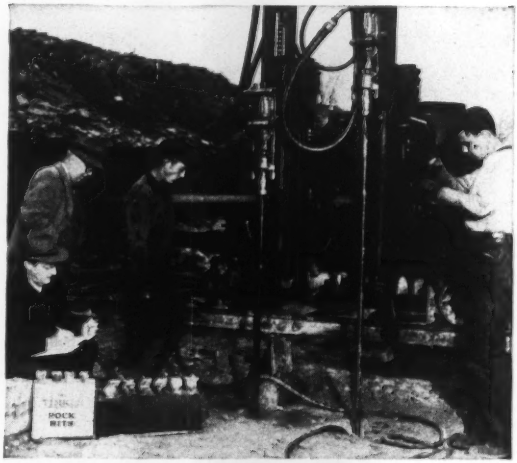

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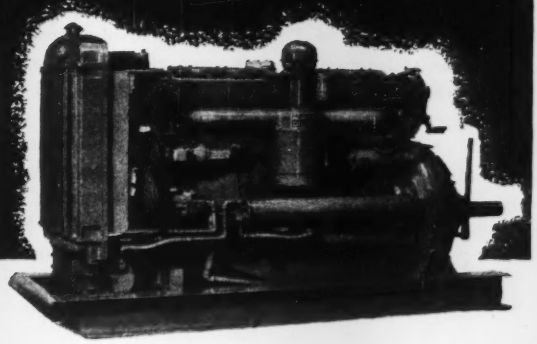

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it's the invisible "ingredients" that make the difference.

Other than its oneRed-Strand, a "HERCULES" Wire Rope would look pretty much like any other rope having no distinguishing mark. But there is a difference! And that difference is due to a "thousand and one" *invisible* factors. It is made possible by setting up and rigidly maintaining exacting standards . . . by utilizing our almost 100 years of manufacturing experience in the designing and fabrication of wire rope . . . by strictly following the principle of "quality first!"

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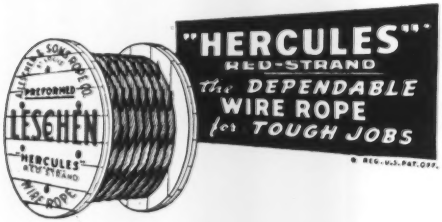

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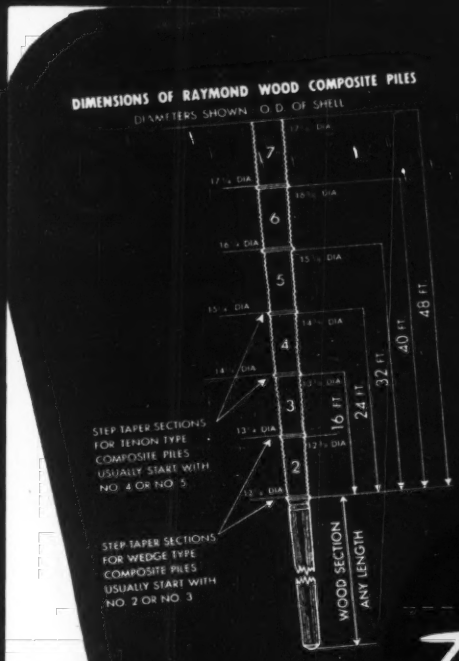
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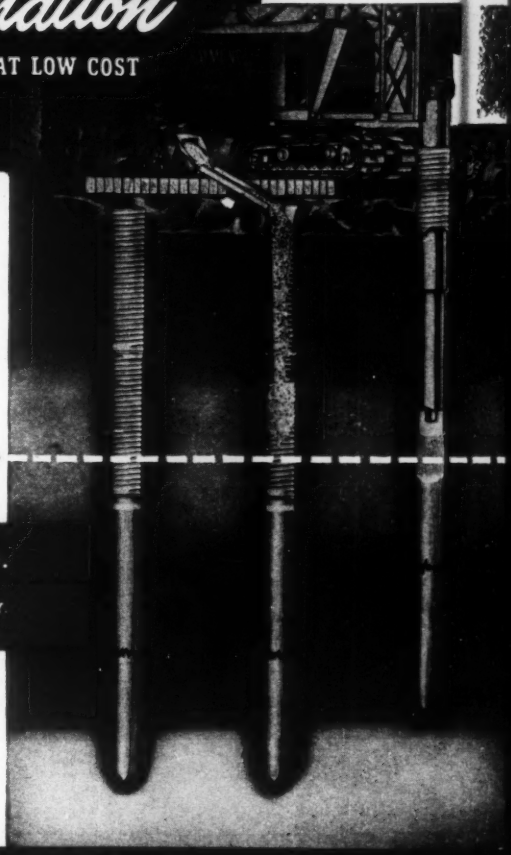
The right combination

FOR LONG LENGTH AT LOW COST

Right, driven wood pile is being followed down by pile shell of concrete section. Center, complete pile driven to resistance, pile shell is being filled with concrete. Joint, wedge-type with sealing ring, is below ground-water level. Completed pile is shown at left.



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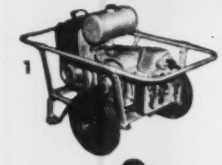

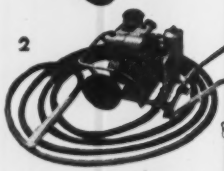

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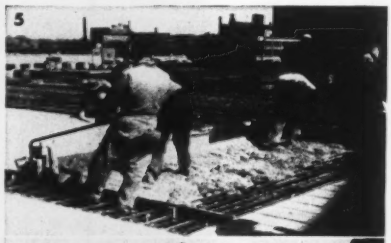

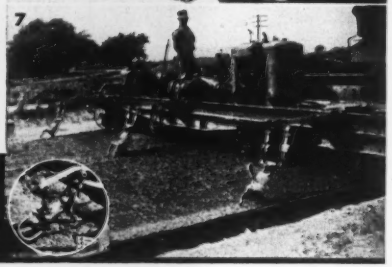

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NEWS BRIEFS

Truck vs. bridge—A long-condemned 150-ft span bridge over the Cowichan River in British Columbia collapsed recently under the weight of a heavy truck, isolating 2,000 persons in three Vancouver Island communities.

Short man for long job—Indianapolis street department has hired the right man for the back-aching task of painting "no parking" strips on many curbs. He is Guy Beaman, 4 ft. 1 in. tall.

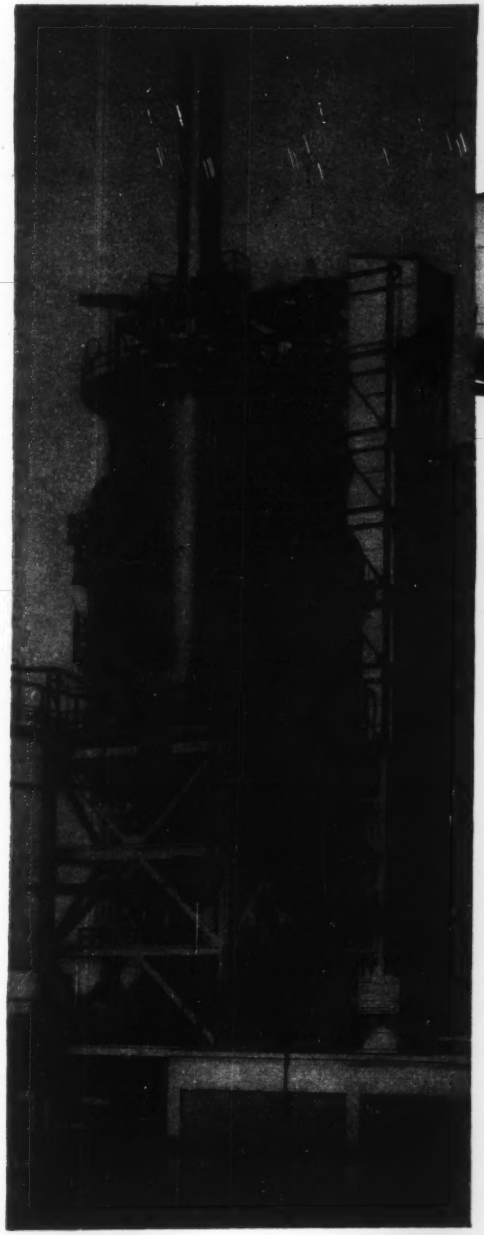
Robins delay building—For some time four robins' eggs held up construction on a 6-story apartment building in Forest Hills, Queens, N. Y. City. The birds were nesting in a corner of the steel scaffolding on the 5th floor level. Workmen worked all around the place leaving the nest untouched until two of the four eggs hatched. Then the nest was moved to a safer spot.

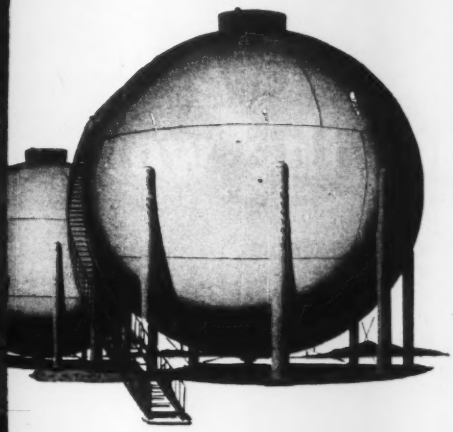
An ill wind—A contractor who had a $300 contract to remove a porch roof from a cottage at Buckroe Beach, Va., lost out when a wind storm blew the roof off and neatly piled the lumber in the back yard.

Animals as bulldozers—The Economic Cooperation Administration is trying to find out whether the elephant and the water buffalo are more efficient than modern machinery in Burma's lumbering industry. William J. Green, ECA agricultural specialist in Burma, and J. A. Von Monroy, forest products specialist of the Food and Agriculture Organization of United Nations observed in a report that, while mechanical equipment can be used to better advantage on level land, the animals seem to be more efficient on steep hills and rough land. Von Monroy is working up figures on the comparative cost of animal versus mechanical operations.

Embattled farmers—Four farmers held up construction on the western extension of the Pennsylvania Turnpike in Little Beaver Township, near Enon Valley, Pa., more than a week recently when they put farm machines in the path of D. W. Winkelman Construction Co. crews. This prevented the men from blocking off Township Highway 356, which under plans of the Pennsylvania Turnpike Commission would be filled in. The farmers also filed a suit asking an injunction against the contractor, because the turnpike commission had

(*Continued on page 12*)





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New truck-mounted Bantam Back Hoe goes anywhere fast . . . opens trenches and other excavations to depths of 14 ft. Leaves trench bottom flat . . . sides straight, without need for hand trim. Three optional bucket widths — 20", 25" and 30" — with choice of solid or basket-type buckets for handling various materials.

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Backfills 350' of trench per hr.

With trench opened and pipe in place, operator simply hooks on fast-change Bantam backfill blade . . . covers trench in a jiffy . . . moves on to next job. Big 5' x 2' Bantam backfill blade has maximum reach of 23½' . . . works to within 8½' of center of machine rotation . . . remains perpendicular to ground at all times for fast "dozing" action.

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SB-C-13

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Costs less . . . goes anywhere fast
GETS MORE JOBS DONE

not petitioned the courts to have the township road vacated. The suit was withdrawn when turnpike officials purchased the farm owned by one of the objectors and parts of the farms owned by the other three.

Bid-free contracts—Florida legislators are considering raising to $3,000 the ceiling at which the state road department can contract for work on equipment without calling for bids. Proponents of the measure said that increasing costs of supplies make it a hardship for the road department to operate efficiently under the present $1,000 limit on bid-free work.

Jobs for 60 traffic cops—New Jersey will have to add at least 60 new men to its state police force before the New Jersey Turnpike is opened to traffic next fall. Col. Charles H. Schoeffel, state police superintendent, has already started a recruiting drive. Turnpike Authority has agreed to reimburse the state for policing the road and will pay the salaries of the troopers out of tolls collected from motorists.

Half a loaf better than none—The cost of constructing a sewer system and sewage treatment plant at Elmira Heights, N. Y., has been placed at $806,900 by Gibbs & Hill, New York engineering firm. Constitutional debt limit would prohibit undertaking the complete project at this time. E. P. Leclerque, of the firm, has suggested that the sewage treatment plant and the main trunk and collector system be built as the first step. Under this program, the area with the greatest population concentration could be served.

Suburban growth—At Indianapolis, Ind., there was a growth of 80.7 percent in suburban population during the 1940-50 decade, as against a 9.7 percent growth inside the city. The influx of 103,818 persons just outside the city limits has brought grave problems of sewerage, sanitation, and transportation, not to mention municipal finance.

South Boston waterfront—Plans of the Port of Boston Authority to develop part of the South Boston waterfront into a modern cargo-handling and industrial area have been advanced by a loan of $120,000 from the Housing and Home Finance Agency. The authority plans to spend $353,800 to buy that part of the harbor from railroads and other interests so that new docks, warehouses and factory buildings may be erected there.

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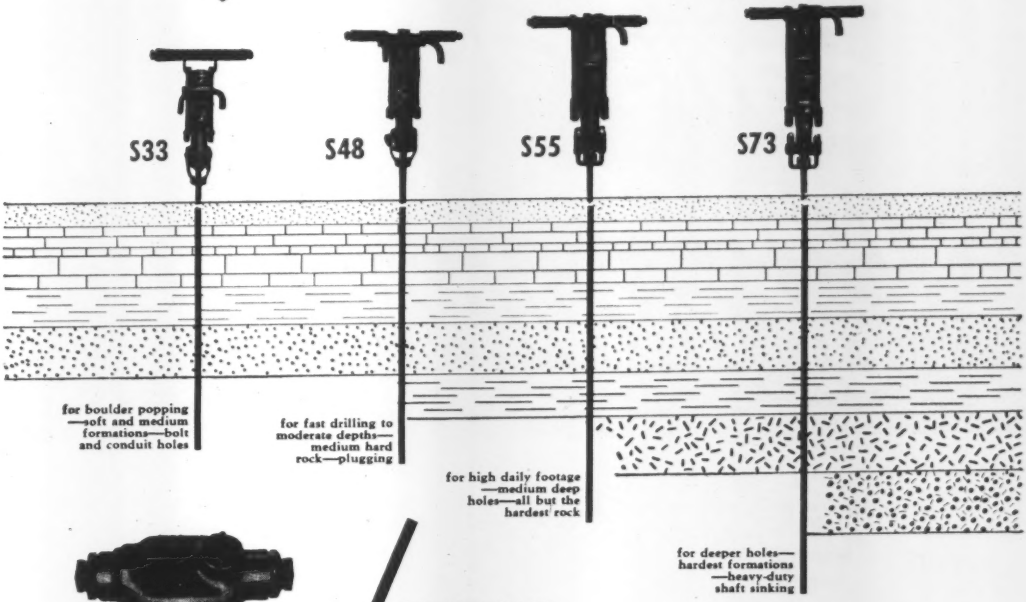
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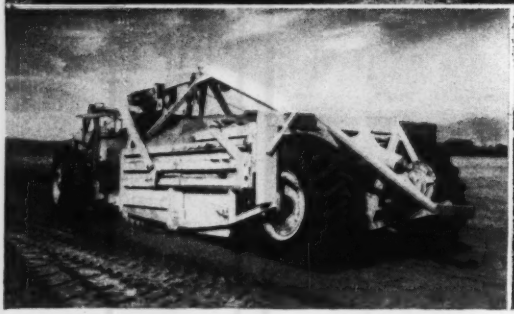

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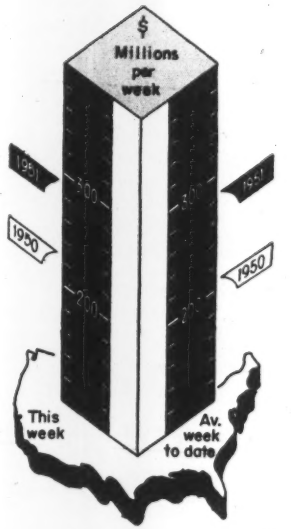
THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 23 wks 1951	1950	% chge
Waterworks	$4.4	$100.2	$106.5	+6
Sewerage	6.7	146.0	104.3	+40
Bridges	5.6	128.5	168.4	−24
Highways	29.8	469.0	518.9	−10
Earthwork, Waterways	8.2	255.0	200.5	+27
Buildings:				
Public	43.2	1,008.7	734.7	+37
Housg., pub.	21.2	253.3	104.4	+143
Housg., priv.	20.6	934.9	1,594.8	−41
Commercial	28.6	312.6	397.9	−21
Industrial	87.2	2,215.6	515.0	+330
Unclassified	40.5	728.0	398.4	+83
Total	**$296.0**	**$6,551.8**	**$4,813.8**	**+35**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	June '51	542.68	260.86	113.76
Bldg Cost	June '51	400.75	216.33	113.92
Volume	**May '51**	**501.8**	**204**	**145**

(Other business news on p. 80)

MOBILIZATION AGENCIES IN SHAKEUP—The Defense Production Administration may be abolished. No radical changes in top policies are foreshadowed, but boss mobilizer Charles E. Wilson is trimming DPA by transferring major functions to other agencies. National Production Authority is expected to take over Controlled Materials Plan allocations and Reconstruction Finance Corp., under its new and energetic director, W. Stuart Symington, will then get final say on defense loans and certificates for five-year amortization.

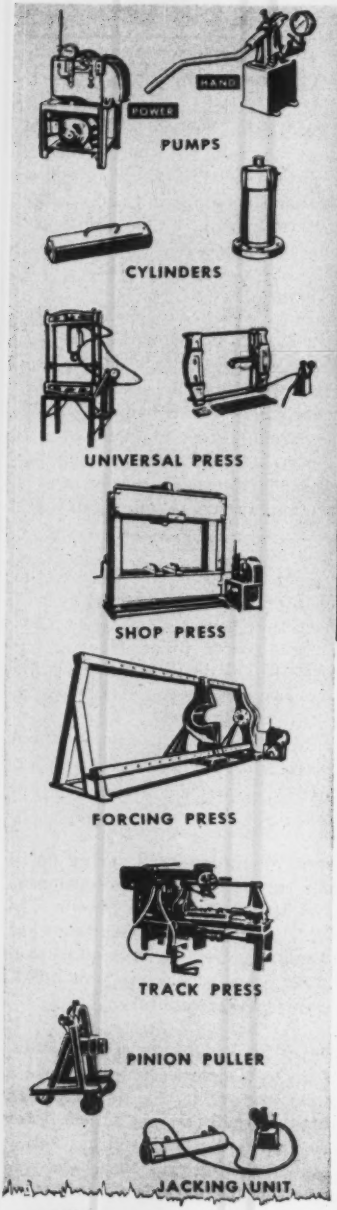
EXPENSIVE HOUSING?—Dollar values being what they are, mobilization officials are now considering revising the recent NPA order that put a $35,000 ceiling on the cost of a permissible new single-unit house. What's in the wind is a limitation on a square-footage basis, rather than dollar-value. One thing is certain: Whatever the change, builders won't like it. They claim neither square footage nor price is any real indicator of steel and copper use (which the NPA order seeks to conserve). Many builders would like to see housing permits put on the basis of actual use of scarce materials—or even of how many bathrooms and plumbing fixtures would be used.

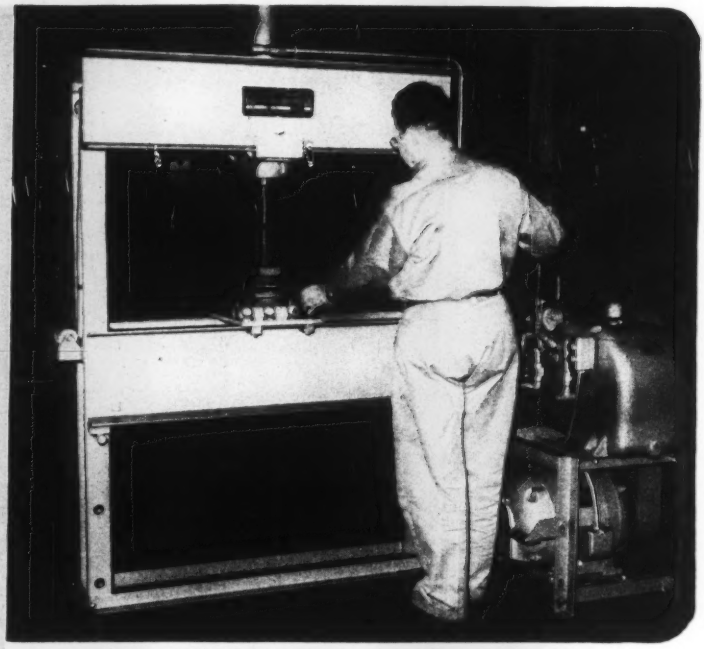
SNAKE FIGHT—Another bitter fight is developing before the Federal Power Commission between a private power company and the Department of the Interior. Secretary Oscar L. Chapman has attacked a proposal for a 140,000-kw power plant (one of an eventual five) to be built on the Snake River, near Oxbow, Ore., by the Idaho Power Co. Chapman opposes on the ground that Reclamations proposed Hell's Canyon Project (ENR Feb. 22, p. 26) would eventually develop approximately three times the 487,000 total kw Idaho Power Co. expects to realize from its five plants. Congress is being asked to authorize Hell's Canyon this year and appropriate $8 million for use in fiscal 1952.

DISPERSAL DYING—More temporary buildings will spring up in Washington, D. C., if Congress goes through with its intention to kill the Federal Dispersal Plan (ENR Mar. 8, p. 17). A Senate subcommittee last week backed up the House by recommending that dispersal be dropped. The Public Buildings Service says additional temporaries are the only solution if Congress sidetracks new buildings outside the city; forbids leasing private structures.

WATER POLICY SCRUTINIZED—Some legislative recommendations on federal water policy may go to Congress this year. As a starter for future hearings, the House Subcommittee on Irrigation and Reclamation recently had Budget Bureau officials before it for three days, to find out what the President's Water Resources Policy Commission recommended in its 1,200-page report. More study is required, the budget men said, before commission recommendations on major policies can be segregated and interpreted.

ON THE ONE HAND, AND ON THE OTHER—Rhode Island citizens have been told that the federal government is urging pollution control on a nation-wide basis—have spent more than $10 million in the fight. But, a proposed $1.2-million sewage disposal system for the Navy base at Newport has been denied funds though millions of gallons of raw sewage pour into Narragansett Bay daily.





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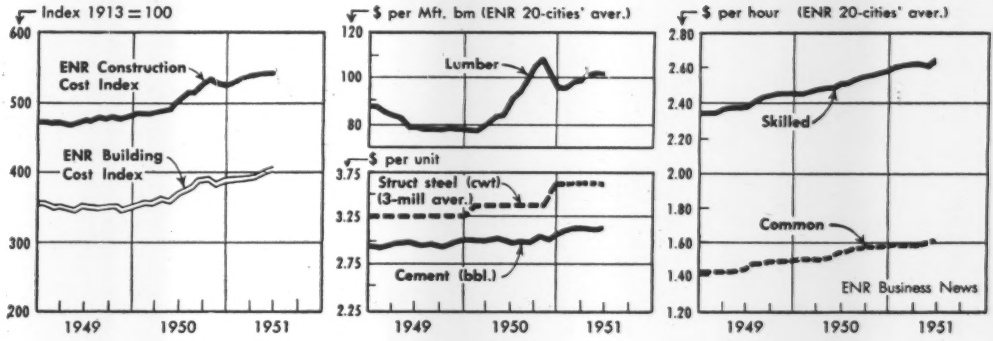
JUNE CONSTRUCTION SCOREBOARD



ENR INDEXES (1913 = 100)	June '51	May '51	% Change	June '50	% Change
Construction Cost	542.68	542.93*	—0.04	506.88	+ 7.1
Building Cost	400.75	401.10*	—0.08	373.39	+ 7.3
Material Prices (20-cities' average)					
Cement, bulk, per bbl	3.158	3.153	+0.1	2.965	+ 6.5
Structural Steel, (3-mill aver.), per cwt	3.650	3.650	0.0	3.400	+ 7.4
Sand, per ton	2.085	2.093	—0.3	1.968	+ 5.9
Lumber, 2x4 Fir, per M. ft. bm	109.955	111.588*	—1.4	99.441	+10.5
Lumber, 2x4 Pine, per M. ft. bm	93.517	95.416*	—1.9	82.433	+13.4
Common brick, per M.	31.102	31.275	—0.5	28.250	+10.1
Ready-mixed concrete, per c. y	10.945	10.900	+0.4	10.333	+ 5.9
Structural Clay Tile, 3x12x12 per M	143.964	143.964	0.0	132.900	+ 8.3
WAGE RATES (20-cities' average)					
Common	1.615	1.608	+0.4	1.528	+ 5.7
Skilled (aver. 3 trades)	2.648	2.629	+0.7	2.517	+ 5.2
Bricklayers	2.923	2.900	+0.8	2.783	+ 5.0
Structural Ironworkers	2.604	2.581	+0.9	2.478	+ 5.1
Carpenters	2.417	2.408	+0.4	2.289	+ 5.6

	May			Five Months		
CONTRACTS AWARDED (thous.)	1951 (5 weeks)	1950 (4 weeks)	% Change†	1951 (22 weeks)	1950 (21 weeks)	% Change†
Total U. S. (ENR reported)	$1,267,995	$931,153	+ 8.9	$6,255,842	$4,411,346	+35.3
Private	698,456	492,953	+13.3	3,746,537	2,506,314	+42.6
Public	569,539	438,200	+ 3.9	2,509,305	1,905,032	+25.7
Federal	209,973	138,972	+20.8	973,236	609,880	+52.3
ENR Constr. Volume Index, '13 = 100	501	500	0.0	577	464	+24.3
NEW CONSTRUCTION CAPITAL						
Total	705,098	485,825	+16.1	5,017,180	1,892,590	+153.0
State & Municipal Bond Sales	568,648	329,735	+37.9	1,535,080	1,141,314	+28.4
Corporate Security Sales	136,450	156,090	−30.0	806,215	751,276	+ 2.4
Federal (non-federal work)	.....	.....	.....	73,425	.....	.....
Federal (federal work)	.....	.....	.....	2,602,460	.....	.....

MATERIAL SHIPMENTS & LABOR SUPPLY	March (M) April (A) 1951	1950	% Change	Three Months (3) Four Months (4) 1951	1950	% Change
Cement, thous. bbls., Bu. of Mines	17,692(M)	14,669(M)	+20.6	41,223(3)	34,125(3)	+20.8
Fabr. Struc. Steel, thous. tons, AISC	193(A)	164(A)	+17.7	747(4)	586(4)	+27.5
Lumber, mil. ft. bm., NLMA	3,448(M)	3,343(M)	+ 3.1	9,531(3)	8,841(3)	+ 7.8
Lumber Prod., mil. ft. bm., NLMA	3,288(M)	3,091(M)	+ 6.4	9,056(3)	7,941(3)	+14.0
Contract Constr. Employ., thous. BLS	2,451(A)	2,076(A)	+18.0	(Av.) 2309(4)	(Av.) 1,941(4)	+18.9

* Revised. † Computed on Weekly Average Basis.

positive corrosion protection at lower yearly cost

Kansas City—girders of highway overpass metallized with .012" zinc to protect the steel from corrosive effects of locomotive flue gases.

with pure metallized zinc and aluminum

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The Metco Systems, a new series of 18 basic engineering specifications developed by Metallizing Engineering Co., cover the protection of structures and equipment under a wide range of corrosion conditions, including immersion in salt or fresh water of various pH values; exposure to water ballast, condensate and some mild acid solutions, and to salt, humid, rural and industrial atmospheres ranging from light to heavy.

The Metco Systems are the result of over 19 years' experience with pure zinc and aluminum coatings on many different types of structures and equipment. They provide the answer to standardization of surface preparation, coating thickness for various service conditions and after-coatings to meet specific requirements.

The Systems also provide for meeting appearance requirements with specific organic coatings in a range of colors, all thoroughly tested for compatibility with the metallized zinc and aluminum.

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Need for road restudy recognized

SEVERAL STATES have begun surveys to determine what new highways they require urgently as opposed to what highways they would like to have. Back of this action lies realization that money probably cannot be obtained within the next few years with which to build a more nearly ideal highway system and that, therefore, each state should make a new determination of what roads it can build at today's costs with available funds.

A few years ago, at the request of the Bureau of Public Roads, each state made a report on what highway work it would have to undertake to bring its primary system up to standards set by the bureau. The total amount required, according to these reports, reached the staggering figure of $36 billion (ENR Feb. 2, 1950, p. 28). Analysis of a breakdown of that total among the states indicated that some state highway departments had been realistic in their compilation of needs while others had put no rein on their imagination. As a result, from a national viewpoint, we have no clear idea of what our real roads needs are.

That situation points to the desirability of nationwide studies similar to these undertaken by some of the states. We know that money and construction materials and equipment for road work are going to be tight until defense requirements have been met. And manpower may be in short supply for a still longer period. But we know also that traffic density on our main highways is rising and will continue to rise as the defense program expands.

Under these conditions, the main question for which highway departments should seek an answer is: Where can the available road money and road building materials be spent to make certain that the existing road system does not break down during the years just ahead?

Obviously, the resulting program could be quite different from one designed to meet long-range needs. It might call for re-surfacing of many roads that in a long-range program are scheduled to be replaced by new highways on better location. This probably would be true of heavily traveled roads in urban areas where the start of new construction has been delayed by right-of-way troubles or where construction on the new location will require several years.

Such a study might even show the need for setting up temporary by-pass routes that will have no place in a long-range program, but which are needed to relieve intolerable congestion until such time as more permanent relief can be provided.

The desirability of always keeping the more ideal long-range road program in view in this restudy of highway needs ought to be apparent. Only thus can the best use of available funds be assured.

Such a study also should show where current road programs—developed before the nation was faced with its current defense program—can be curtailed in the interest of conserving men, materials and equipment. The results may not be to anybody's liking, but they should be of material help to the defense program.

More than honor involved

TO BE ELECTED to the presidency or any other high position in a society or association to which one belongs is a high honor. It is usually also a call to responsibility and hard work. Nominating committees sometimes overlook this latter consideration, consciously or unconsciously putting the sole emphasis on honoring a man who has great accomplishments to his credit or who has worked long years for the organization. He may have neither the liking nor the ability to run its business and other affairs, in which case a disservice has been done him as well as the society.

The combination of honor and responsibility is peculiarly true of the presidency of an association. In addition to being the highest honor the organization has to bestow, it is a post of great responsibility. Hence it should be conferred only on that individual who, in a period of twelve months' leadership, can so guide the organization as to insure that it renders the greatest possible service both to its members and to the particular segments of the population that are affected by its activities.

As an example of a society in which the responsibility resting in the president appears to have been recognized in the selection of its recent leaders, the American Society of Civil Engineers is outstanding. Nearly a dozen of the men who have held this high office are still living, and each in his time not only deserved to be honored, but had high qualifications that fitted him for society leadership.

A member of one of the nominating committees once characterized these qualifications as being of two kinds—personal and professional. On the personal side a president should be far above average in administrative and executive ability, and a public speaker of presence and poise. His integrity must be above question, his human qualities outstanding.

Professionally his record of service must be impressive, both in quantity and in quality, and registered in three different fields: (1) in his own field of business; (2) in the engineering profession at large; and (3) in the society itself.

Judging by the experience of the past decade, the prestige and influence of technical and professional organizations in the future will depend more and more on the type of service they render to society in general. That will constitute further reason to pick presidents with high leadership qualities.

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Duraplastic is so often *specified* for structural work because it gives a more plastic, more cohesive mix that is more workable and easy to place. Duraplastic air-entraining portland cement needs less mixing water for any given slump.

Makes more durable concrete

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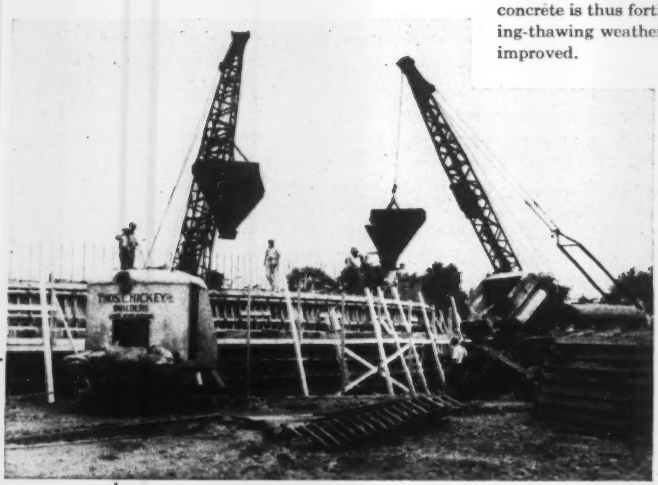

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ENR-D-128

ENGINEERING NEWS-RECORD

JUNE 7, 1951 VOL. 146 NO. 23

NPA prepares machinery for smooth-working CMP

Eight claimant agencies given licensing authority for new projects in their fields—Construction applications to be speeded by more field offices, wider powers

The National Production Authority is streamlining its construction controls machinery to operate under the forthcoming Controlled Materials Plan. As the first step, NPA planned this week to assign to eight claimant agencies licensing authority for new projects in their fields.

Following the delegation of licensing power, the eight agencies will approve or deny permits for new construction starts on projects in their jurisdictions covered by NPA Order M-4. To aid CMP bookkeeping, they will report approved projects and their allotments of controlled materials needed to meet job requirements.

• **They will screen**—Except for housing, where the restrictions are based on different standards, the agencies in general will pass on projects that require 25 tons of steel or more. Project applications will go to these agencies for screening:

Schools and civilian hospitals to the Federal Security Agency; highways and airports to the Commerce Department (Bureau of Public Roads and Civil Aeronautics Administration); electric power, minerals and metals, solid fuels and fisheries to the Interior Department; oil and gas to the Petroleum Administration for Defense; storage and port facilities to the Defense Transport Administration; farm and food processing to the Agriculture Department; VA hospitals to the Veterans Administration; and housing projects to the Housing and Home Finance Agency.

Beyond this step, NPA was not ready to do much this week toward inaugurating CMP for construction. Regulation 6—establishing CMP rules for the industry—is still being worked over for issuance probably next week.

• **Decentralization**—Delegation of licensing authority to claimant agencies points a trend on one of the issues being settled. NPA is deciding this week just how far to go in decentralizing the CMP operation—by allocating controlled materials and assigning allotment power to the claimant agencies.

Another tussle is under way on the method of alloting materials to projects—whether to grant non-quantitative blanket allotment authority to each job or to issue specific quarterly allotments of materials. Structural steel stands out as the tightest material requiring 100% allocation.

A suggested compromise would put structural steel on a quantitative allotment basis, by quarters, for construction projects, and grant blanket allotment authority for other materials.

• **To speed applications**—On the licensing front, NPA last week moved to speed action on applications. By authorizing the 30 field offices now handling commercial projects to do the same for industrial and public works jobs that don't require more than 50 tons of steel, or cost more than $1,000,000.

The authority covers all List C projects except housing as jobs using less than 25 tons of steel are not required to apply. The new field office powers actually include only projects in the 25-50-ton steel range.

To further facilitate handling of applications, the Construction Controls Division planned this week to authorize seven more field offices to pass on requests for construction permits. Pending final decision, the offices tentatively selected are scattered from the Missouri River to the Atlantic Seaboard and from the Ohio to the Gulf of Mexico.

In another step—to simplify construction controls—NPA last week was working out a definition of single-family houses requiring construction permits. List C specifies licensing for any house that costs more than $35,000 to build. The agency aimed to translate this requirement into a square foot or cubic foot standard that could be applied by NPA field offices.

• **Some allocations**—NPA by last week had made third-quarter allocations for the construction industry through a few claimant agency programs under the Controlled Materials Plan (ENR May 31, p. 23).

The Bureau of Public Roads will allot for highways 300,000 tons of steel and 750,000 lb of copper. Total steel requirements for a full highway program for 1951 are 1.8 million tons.

Highway contracts take a downturn

Contract awards by state highway departments have been on the downgrade for the last three months, according to the Bureau of Public Roads. By comparison with last year, awards were lower by $21 million, or 22% in March; $50 million, or 37%, in April, and $30 million, or 21%, in May.

The downturn marks a reversal of a long-sustained upward trend. In 12 of the 15 months preceding March, the monthly awards exceeded those of the previous year. January of this year topped the 1950 month by 66%. February also surpassed the same month last year, but only by 1%.

With totals for the last three months running uniformly less than last year, road builders are becoming concerned about the effect on future volume. In the first five months of 1950, the states awarded contracts for $543 million. This year, the total for the five months is down more than $60 million. A strong start in January, $38 million above last year, holds the five-month loss to a relatively modest figure.

• **The look ahead**—This loss can be absorbed or made up without much effect on total highway construction activity for the year. But if the decline persists, the reduction in road building volume may become noticeable later this year and substantial in 1952.

Recent actions by government mobilization agencies on project licensing and steel allocations point to tightening of highway contract awards. Until a month ago, highway construction in 1951, was expected to equal or exceed last year's $2.425 billion total for all roads and streets.

With the large volume of work now under way, 1951 still will come close to that mark. But a continued downtrend in new contract awards could curtail seriously highway expenditures in 1952 .

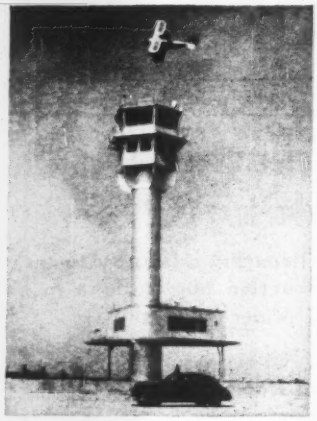
Twelve-member commission for construction wages

The Wage Stabilization Board last week established a special twelve-member commission to administer wages in the construction industry. As soon as its organization is completed, the new Construction Industry Stabilization Commission will perform practically the same functions as were handled by the Wage Adjustment Board during and after War II (ENR May 31, p. 57).

Tripartite in makeup, the commission will consist of four public, four labor and four management members, all appointed by WSB. Two of the public representatives will serve as chairman and vice chairman. The management members will include two representing general contractors and two representing subcontractors.

Prime duty of the new commission is to stabilize wage rates and other compensation for on-site manual worker—on the basis of area rates.

Included in its jurisdiction are working formen and mechanics apprentices. Not included are executive, administrative, technical and clerical employees.



LIKE A SORE THUMB—Control tower deck at Sky Harbor Airport, Phoenix, Ariz., is supported 92 ft above the ground by a 9-ft dia steel tube. The $90,000 structure is air-conditioned against desert heat and located on the site of a future administration building for the field. It was built by the Mardian Construction Co., designed by Lescher & Mahoney. (Phoenix Chamber of Commerce photo)

Pa., N. J. approve turnpike connections

Legislation approving construction of connecting links between the Pennsylvania Turnpike and the New Jersey Turnpike has been approved in both states, including construction of a bridge over the Delaware River.

The Pennsylvania act authorizes use of an existing bridge if that is found to be feasible. Which agency will build the bridge, if a new one is required, is left to future agreement between the two turnpike authorities concerned with this $100-million proposal (ENR Apr. 26, p. 30).

Another bill passed by the Senate in Pennsylvania, but not yet acted upon in the House, would amend the act setting up the Delaware River Joint Toll Bridge Commission as a bi-state agency.

The measure would permit the commission to build or purchase a bridge in the region where the turnpike connections would cross the Delaware River and lease it to public agencies, presumably the turnpike commissions.

This act would not affect the powers granted by a bill already approved for the turnpike authorities to build a bridge—provided that bridge is more than 10 miles from the bridge now being built across the river at Trenton by the Joint Bridge Commission.

It is expected that the connecting highway will extend from the eastern end of the Pennsylvania Turnpike at King of Prussia, which is near Norristown in the Philadelphia suburban area, and will pass to the north of Philadelphia and across the Delaware River to a point on the New Jersey Turnpike near Bordentown.

The New Jersey act also authorizes the Turnpike Commission to study a possible extension of the turnpike from its present northern terminus at Route 6, west of the George Washington Bridge, northward to the New York State line—for a possible connection to the New York State Thruway. Also under consideration is an extension from Newark to Bayonne.

Delaware Highway Dept. dismisses McKendrick

Walter B. McKendrick, Jr., assistant chief engineer of the Delaware State Highway Department, has been dismissed after 15 years service with the department, for reasons that are reported to be political.

Mr. McKendrick was informed of his dismissal by a letter from Acting Chief Engineer Richard A. Haber, who said that the dismissal is in no way a reflection upon Mr. McKendrick's professional standing.

Further credit exceptions for AEC worker housing

To make possible the construction of 500 additional rental units for Georgia and South Carolina defense workers in the vicinity of the Savannah River plant of the Atomic Energy Commission, the Housing and Home Finance Agency announces that exceptions from real estate credit restrictions have been authorized.

The original announcement of relaxation of the credit controls of Regulation X for this purpose was made early in March (ENR March 22, p. 15). It was estimated at that time that there would be an eventual need for 3,600 units at the Savannah River site in South Carolina.

Clay P. Bedford becomes asst. defense mobilizer

Mobilization Director Charles E. Wilson last week named Clay P. Bedford, executive vice-president of the Kaiser-Frazer Corp., as assistant mobilization director.

A native of Knox County in Texas, Bedford, 47, has been associated with Henry J. Kaiser in many construction projects since 1925, when he joined the Kaiser Paving Co., Oakland, Calif. He had just come from the Rensselaer Polytechnic Institute with a degree in civil engineering.

Since then, he has helped build the Vallejo and Philbrook Dams in California; was chief engineer on construction of the Central highway in Cuba; and held responsible posts on the Boulder, Bonneville and Coulee Dam projects.

During the war Bedford was in charge of the four Richmond, Calif., shipyards where Kaiser and his associates built 729 ships, varying from Liberties to LST's.

FHA grants $17-million N. J. housing development

Federal Housing Administration gave the green light to construction of five 14-story apartment buildings in Newark, N. J., which will provide 2,095 dwelling units. Financing of the $16,966,000-project is being arranged according to provisions under the National Housing Act.

The five buildings, each of which will have 419 living units, will be erected on 30 acres formerly owned by the City of Newark. They will occupy 9% of the land; the remaining acreage will be devoted to parks, playgrounds and 100% parking for tenants. Occupancy is expected to begin in the spring of 1952.

Begin on five-mile tunnel for Niagara Falls power

Work was started last week on a tunnel, five miles long and 45 ft in dia, large enough to carry 20,000 cu ft/sec of water around Niagara Falls.

A Canadian power project, the tunnel will take water from the Niagara River above the falls and carry it under the City of Niagara Falls, Ont., to an open cut near the Whirlpool. There the flow of water will supply power for the new hydroelectric plant which the Ontario Hydroelectric Commission is building in Queenston (ENR May 31, p 27).

Construction of the tunnel will require excavation of 1.9 million cu yd of rock, 17,000 tons of structural steel and 440,000 cu yd of concrete.

A contract for the construction of two of the four sections of the tunnel has been awarded to Rayner-Atlas Ltd., a Canadian firm. Approximately 1,800 men are at work now. That number is expected to increase to 5,000 by year's end. Although the cost of the tunnel has not been made known, cost of the entire hydroelectric development is estimated at $157 million.

Use of additional water for power at the falls is authorized under a recent agreement between Canada and the U. S. More is to be used at night than in the daytime.

Houston ship channel improvement sought

Spokesmen for the port of Houston, Texas, are recommending an improvement program for the Houston Ship Channel which would cost an estimated $21 million.

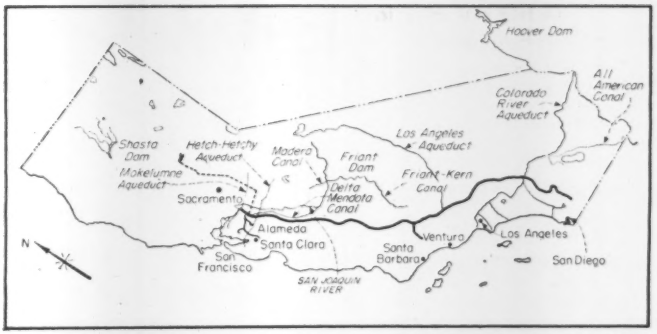
The channel depth is now in the process of being deepened from 34 ft to 36 ft. Port Director W. F. Heavey proposes that Army Engineers deepen the channel to a minimum of 40 ft as a "vital defense measure".

Heavey points out that Houston is the country's No. 1 oil port and that the deeper channel is required to accommodate the super tankers now building under mobilization plans.

The proposed program of improvement would include the construction of a new turning basin for the larger tankers; widening the channel at several points; the construction of a dam; and the easing of eight bends in the channel to eliminate navigation hazards.

Houston's Navigation District is obligated to furnish without cost to the federal government, the necessary lands, easement, rights-of-way and disposal areas necessary, it is claimed.

The port handled 32 million tons of petroleum in 1950.



DIVERSION PLAN—Water from Feather River headwaters in northeastern California would be impounded in the proposed Oroville Reservoir, southeast of Shasta Dam, and be brought (dashed line) to water-short areas through channels (heavy lines).

Calif. may bring water down-state

Details of a huge, state-sponsored plan for cross-state diversion of water from Northern to Southern California were becoming clearer last week, as state engineers explained the $1.2-billion scheme to legislators.

The legislature is now considering a measure to appropriate $750,000 to finance detailed studies.

Completely independent of the U. S. Bureau of Reclamation's Central Valley Project, the new plan would:

Provide water for three of the most critically water-short areas of the state —Santa Clara-Alameda counties at the southeastern tip of San Francisco Bay; the Santa Barbara-Ventura area, and the southern California area around San Diego (water is also to be provided to the Sacramento area, overlooked in previous projects);

Provide for construction of a $342.6-million dam on the Feather River near Oroville; a $64.5-million power plant at the dam; a $14-million Oroville afterbay and power plant; a $19-million transmission line and substations; a $31-million Santa Clara-Alameda diversion system, and a $794.5-million San Joaquin Valley-Southern California diversion system.

• **Details**—One of the two major diversions channels proposed would deliver water to the east side of San Francisco Bay through the Coast range. The other—the San Joaquin-Southern California channel—would require 567 mi of conduit running along the west side of the valley, through the Tehachapi Mountains, and across the Majave Desert to reach a tributary of the Tijuna River, San Diego.

The Feather River reservoir would impound 3,500,000 acre ft and require rerouting 23.4 mi of main track of the Western Pacific Railroad and 20.5 mi of state highway.

• **Practical, feasible**—State Engineer A. D. Edmonston, whose Division of Water Resources developed the plan, told lawmakers that the plan is practical and feasible from an engineering standpoint, and could be financed with state and federal contributions, plus power and water revenues.

Mr. Edmonston noted that the Feather River above Oroville has a mean annual runoff of 4,500,000 acre-ft—one-fifth of the runoff of the entire Sacramento River Basin. The Santa Clara-Alameda area would get 127,000 acre ft of water each year at a cost of about $20 per acre ft, he added. The San Joaquin area would get about 945,000 acre-ft yearly at a cost of about $30 per acre-ft; the southern California area would get 1,773,000 acre-ft yearly at a cost of $50 per foot.

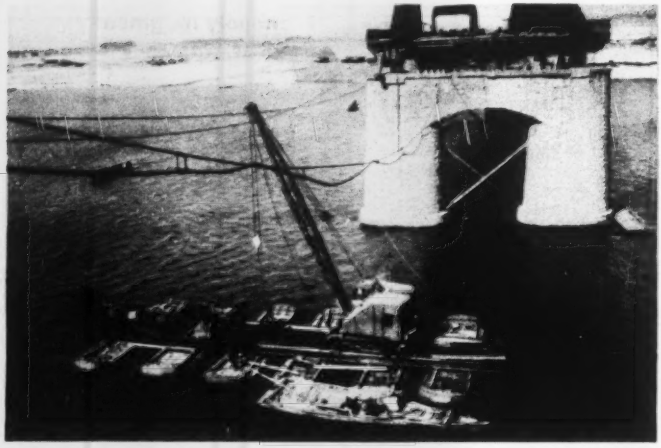
• **Help wanted**—The project will not be possible, however, according to the report, without contributions.

Private power company seeks Delaware permit

An examiner for the Federal Power Commission recommended last week that the Delaware River Development Corp. of Jersey City, N. J., be granted a one-year permit to make plans for the development of water power at three sites located on the Delaware River.

The company seeks a permit to build three dams and power plants on the Delaware at a cost of $47 million. It is not an operating electric utility.

In his recommendation, the examiner stipulated that the permit, if issued, should not give the applicant priority over agencies of any one of the three states concerned, Pennsylvania, New Jersey or New York.



FLOATING CRANE—The Eighth Army in Korea is operating around the clock to put bridges into shape before the summer flood season. Here a crew works on a wrecked highway span across the Han River near Seoul. The crawler crane is supported by pontoons which are positioned by small power boats. (Wide World photo)

Lone Star plant boosts cement capacity

Lone Star Cement Corp. has given the productive capacity of the U. S. cement industry a sizable increase with the opening of a new plant near Roanoke, Va. This new facility, incorporating all the latest developments for large-scale production and quality control, will shortly be turning out in the neighborhood of 4,000 bbl daily (about one million bbl annually).

This is the second Lone Star plant in Virginia. And another new plant is nearing completion in west Texas, bringing the company's total to 17, with a combined capacity of about 31 million bbl.

• **Supply appears adequate**—Actually, construction projects in the U. S. appear to be assured of sufficient cement supplies for 1951. Cement production for this year is expected to total 240 million bbl.

Although it is believed that consumer demand will take practically all of the cement that can be produced, no serious national shortage is expected—unless there is a sudden, substantial increase in construction using concrete. Temporary spot shortages may develop, due chiefly to lack of adequate delivery facilities.

Last year, the cement industry produced 227.8 million bbl. Production capacity for an additional 12 million bbl is being added this year.

In 1950, 1.4 million bbl of cement were imported. Imports for 1951 have not been estimated. However, January-February imports from outside the U. S. totaled 33,000 bbl.

• **Giant kilns**—Lone Star's new Virginia plant has two rotary kilns, each 340 ft long, 10 ft in dia—claimed to be among the largest pieces of moving machinery in the world. They are lined with firebrick to protect the steel shells against internal temperatures, which range up to 2,800 F.

Blended material enters at the upper end of the inclined kilns and gradually works to the lower end—through the burning zone. Moisture, carbon dioxide and other gases are expelled and a chemical change takes place to produce portland cement clinkers.

Grinding of the odd-sized clinkers to a finished product so fine that 93% of it passes through a 325-mesh screen completes the manufacturing process. The cement is then ready for storage in silos, bagging in 94-lb sacks or bulk-loading into railroad cars.

• **Control and power**—Quality control, by constant chemical and physical inspections, follows the process through its many stages from the quarrying of the raw materials to finish grinding. From quarry to shipping platform, raw material travels a distance of about 1½ miles in a highly mechanized manufacturing operation. A total of 75,000 kw-hr of electric power will be used daily.

Lone Star's new Virginia plant was constructed by the Walsh Construction Co. and Ralph E. Mills Co. Fifteen concrete silos with a capacity of 150,000 bbl were erected by the Macdonald Engineering Co. Walsh also built a railroad line to connect with the Norfolk & Western Railway.

Navy air program to cost $192 million for runways

Watch for $192 million of construction—mostly runways—at 23 air stations. Within a short time the Bureau of Yards and Docks hopes to be advertising for bids.

Congress has appropriated the money. Most of it will go into building new runways and extending old ones to the new standard length—8,000 ft at sea level. Wherever necessary, existing runways will be built up for added strength at the same time. In addition, the Navy will build and reinforce taxiways and parking aprons at most of its stations.

First on the list are the runways at Denver, Colo., and Mojave, Calif. These will be lengthened to 10,000 and 9,500, respectively, as required by the altitude of the two fields. Bids will be asked for jobs at other stations as rapidly as the Navy selects the fields to be improved from among 50 under consideration.

By the end of June, the bureau expects to award contracts for a number of runways capable of serving the fastest jet fighters, as well as heavy anti-submarine and cargo planes. Rear Adm. Joseph J. Jelley, chief of the bureau, says that from now on few airstrips shorter than the 8,000-ft standard will be built at naval stations.

Ohio schools to cost less under new building code

Approximately $90 million available for construction of Ohio schools is expected to go to work soon, as the result of state legislation effecting major changes in the building code.

Action on a bill in the Ohio Legislature enables school boards to utilize modern building materials and architectural practices. The present state code dates from 1911. The new bill repeals former requirements covering specific dimensions for the thickness of inside and outside walls and substitutes a table of fire-rating specifications.

Also changed is the requirement that the height of a ceiling in public school buildings be half the width of the room. New requirements are based upon new lighting and ventilating developments.

A 30% reduction in plumbing facilities is expected to cut building costs by at least 7%. A fourth major change takes auditoriums, gymnasiums and assembly halls out of the so-called "theater" classification.

Both houses of the Ohio Legislature have passed the bill, with joint concurrence in minor amendments the only action remaining.

Seek wider scope for Mo.-Ill. Agency

The Missouri senate has before it a bill to broaden the scope and authority of the Missouri-Illinois Bi-State Development Agency (ENR Nov. 3, '49, page 20). It is designed to strengthen portions of the original law of 1949, and to clarify its provisions.

Under the 1949 act the agency is limited to such projects as bridges, tunnels, airports and terminal facilities and its territory includes only the city of St. Louis and St. Louis, Jefferson and St. Charles counties in Missouri and Madison, St. Clair and Monroe counties in Illinois.

The proposed law is intended to grant the agency authority over wharves, docks, warehouses, drains and drainage facilities, including drainage canals, levees, sewers, parking facilities, including the right to make plans and specifications for such projects, let contracts for the construction and to maintain and operate them after construction. The jurisdiction of the agency also would be extended to take in Ste. Genevieve County in Missouri and Jersey and Randolph counties in Illinois.

Similar legislation is to be sought in Illinois.

Lief J. Sverdrup, chairman of the agency, has denied that it intends to infringe on the legal rights and authority of municipalities, counties and other political subdivisions in the areas of Missouri and Illinois that would come under its jurisdiction if the proposed legislation becomes effective.

• **The opposition rises**—Nevertheless, passage of the bill with broadening powers has become increasing jeopardized by opposition principally from several St. Louis senators, who appeared before a senate committee during a hearing on the subject and voiced fears of a "power grab" by the bi-state agency.

Some other objectors have since withdrawn their opposition, after study of the proposed amendments.

Agency officials deny charges there have been no accomplishments. They point out that exhaustive studies of Mississippi River pollution have been made and that plans for an integrated system of regional highways are working.

It was emphasized also that funds made available to the agency can be used only for plans and surveys. The bi-state group has no power of taxation and improvements initiated must be financed by revenue bonds.

• **One dock**—Apparently the only operative project in sight is an $850,000 river-rail dock on the Chain of Rocks Canal near Granite City, Ill. The money will be advanced by the Granite City Steel Co., which is to have the use of two-thirds of the terminal.

Earlier, Mayor Joseph M. Darst of St. Louis had been anxious to have a rail-river-truck terminal in downtown St. Louis, with a special foreign trade zone to facilitate handling of goods from abroad under customs regulations. These plans have been dropped because study showed them to be unsound financially.

Canada extends controls to cover additional metals

Canadian Production Minister C. D. Howe announces rationing of aluminum, copper and brass under government control as of June 1. Nickel and steel already have been controlled.

Previously, other critical metal items were rationed informally—by producers to manufacturers.

Under compulsory control, allotments from mills to manufacturers will be on the basis of 100% of 1950 purchases. Manufacturers will continue to receive monthly allotments on that basis.

However, Canadian defense officials say that the country's mobilization effort will get first call and it is likely that within a matter of months production not essential to defense will be curtailed.

Monopoly judgment entered against trap rock supplier

An antitrust consent judgment, entered in the Federal District Court, New York City, by the Antitrust Division of the Department of Justice, restricts the New York Trap Rock Corp., New York, from further expansion for a two-year period.

The defendant is prohibited from enlarging holdings of quarries or other lands with desposits of stone for a two-year period. Prevented also is the acquiring of competitive companies and sources of crushed stone which would tend to deter or restrict competition.

Complaint in the case was filed November 19, 1948, in which it was charged that New York Trap Rock Corp., which then produced about 90% of the crushed stone used in construction work in metropolitan New York, had attempted to monopolize the crushed stone industry in that area.

The complaint stated that customers of the defendant company were required to take their full annual needs of crushed stone from the company, were prohibited from using competing materials and were controlled in their use of crushed stone.

H. G. Morison, Assistant Attorney General in charge of the Antitrust Division, made known the provisions of the government judgment. Two officials of the defendant company, Wilson P. Foss, Jr., and Wilson P. Foss, III, are named in the judgment.

CUMBERLAND RIVER CONTROL—The roadway atop Wolf Creek Dam near Jamestown, Ky. (ENR Mar. 31, 1949, p. 27), will be ready to carry traffic in another month. All 1,400,000 cu yd have been poured in the 250-ft high concrete section, and the 6,000-acre-ft reservoir is filled to spillway crest. On the 8,500,000 cu yd earth embankment at left stands 420-ft tail tower supporting two 2,300-ft, 25-ton cableways that placed up to 3,446 cu yd per day from 8-cu yd buckets. Unfinished power plant will pack 270,000 kw in 6 units. A combine of J. A. Jones Constr. Co. and Wright Contracting Co. built the $20,000,000 structure for Nashville District, Corps of Engineers. E. J. Albrecht Co. has the power plant contract. Total project cost: $82,700,000. Safety record: No life lost during 4 years of construction of concrete section of dam.

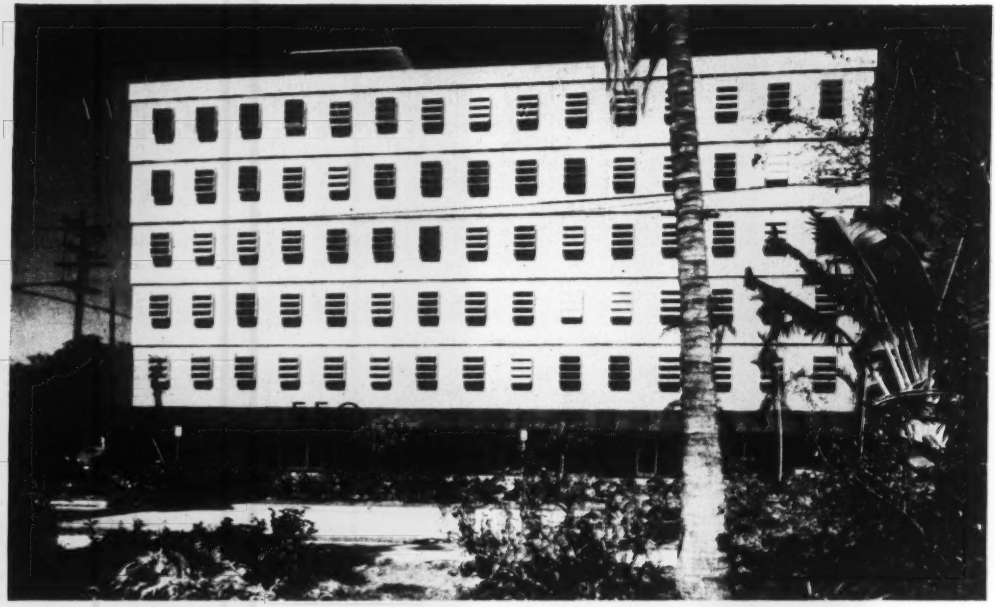


FIG. 1. THE FIVE-FIFTY BUILDING in Miami is faced with thin precast concrete slabs. Aluminum sun shades are permanently attached to the window frames on all but the north side where only a vertical fin is used.

Cost cut in office building design

SIGNIFICANT DEPARTURES from traditional design and construction methods resulted in notable savings in time and money in the construction of a new office building at Miami, Fla.

The structure is being put up as a cooperative undertaking by a group of professional men organized as the Five-Fifty Inc. It occupies the entire 125-ft block front on the west side of Brickell Ave. between S.E. Fifth St. and S.E. Sixth St., which site is just across the Miami River from the city's main business district.

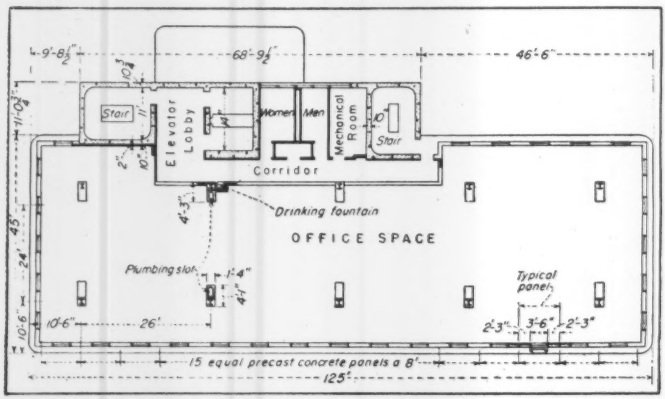


FIG. 2. A TYPICAL FLOOR PLAN showing how all utilities are concentrated in a shaft built of reinforced concrete in the rear of the building. All wind loads on the building are carried by this shaft.

Except for the street floor, which will be rented for stores, the entire building will be used for professional offices.

The design had to take into consideration the fact that the building is exposed on all four sides as the rear opens on a private driveway and court.

Exterior walls are formed of story-height precast concrete slabs on all faces of the building except a large utility shaft that projects from the rear wall. All wind-load stresses are carried in the reinforced concrete walls of this shaft, thus eliminating any need for deep girders and wind-bracing at the columns in the main part of the building. As buildings in this part of Florida must be designed to withstand winds of hurricane force, this unusual method of providing for wind stresses made it possible to use simple flat slabs for floors throughout the buildings. (The same method is used in California to resist earthquake stresses, as reported in ENR Apr. 26, p. 39.)

This flat-slab arrangement, without girders or wind bracing, made it possible to reduce the vertical distance floor to floor (above the ground floor) to 11 ft 3 in., which resulted in a saving of about 9 ft in the total building

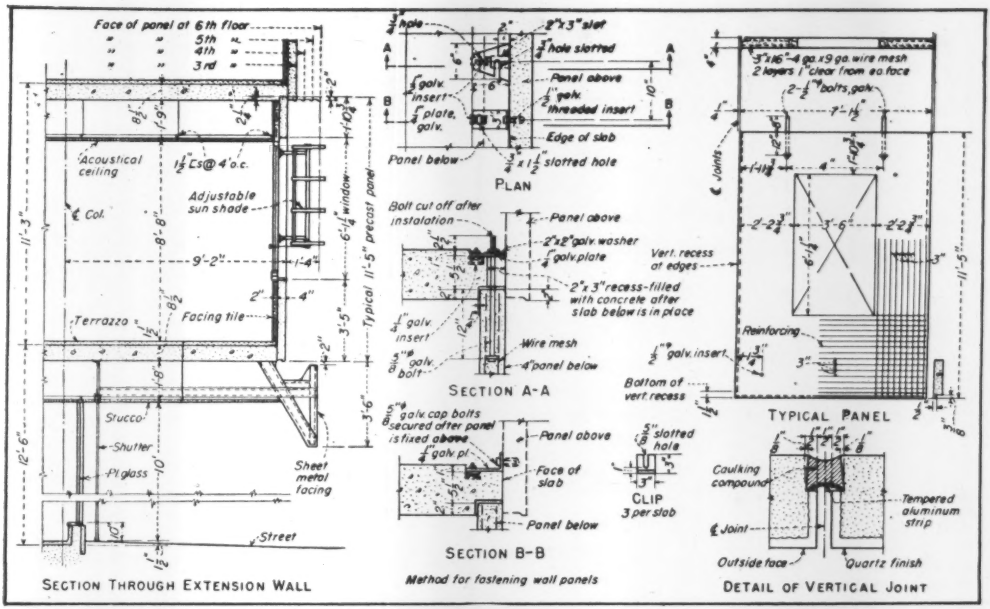


FIG. 3. VERTICAL SECTION through the front wall, indicating how precast face slabs are secured to ends of the floor slabs.

height as compared to a similar six-story office building of conventional design for the Miami area.

Use of precast concrete slabs for the principal faces of the building also made possible elimination of spandrel walls above and below all windows, which are on three sides and about half the fourth side.

Key element of the structural design is the utility shaft set in the rear wall of the building. It is roughly 70 ft long and 16 ft wide, and projects 11 ft beyond the rear wall. In this shaft are two stair wells—one at each end—two elevator shafts and the elevator lobby, toilets, a mechanical room and janitor's room on each floor. The west, north and south walls of this shaft are of reinforced concrete, 10¾ in. thick, and the east (interior wall) is 10-in. thick. Except for a louvred window about one foot high and 18 ft long to provide ventilation and light in the toilets and mechanical rooms, the rear wall and end walls of this shaft are monolithic, thus giving the shaft great rigidity to resist wind loads. Cross walls (10-in. thick) at the ends of the stair wells and rear of the elevator shaft add to the shaft's capacity to carry horizontal wind loads, as do the reinforced concrete stairs in the wells.

For architectural effect and to minimize "hair checks," the exposed portions of the walls of this utility shaft were cast with vertical corrugations ⅜-in. deep on 5-in. centers. It has been found that less hair-checking occurs in such a surface than in a flat monolithic wall.

The building is designed to withstand a hurricane wind velocity of 175 mph, assumed to be 50 lb per square foot of exposed surface. Wind gusts of that velocity actually were experienced during construction.

• **Structural frame**—The main part of the building, roughly 125 x 45 ft in plan is carried on ten steel H-columns of varying section, set 10 ft 6 in. back from the building line and spaced at 26-ft centers the long way of the building and 24 ft the short way. The floors are flat slabs, as noted previously, reinforced with bars, except at the column, where a grillage is used, as the floors are designed according to the patented "Smooth Ceiling System."

There is a plumbing slot at each column, which is so spaced as to pass through the grillage. These slots were provided at each column because of the number of physicians who are to have offices in the building.

At the second floor level the floor slab is cantilevered beyond the column centerlines a distance of 8 ft 10 in., and each floor above that point is cantilevered out an additional four inches to permit the precast face slab of each floor to overhang the top edges of the one below. (See Fig. 3.)

This overhang of the slab is one of the notable structural and architectural features of the building.

• **Precast exterior walls**—All exterior walls other than those of the utility shaft at the rear are of precast concrete 4-in. thick. A typical panel is 7 ft 11½ in. wide and 11 ft 5 in. high. Centered in each one (horizontally) is a window opening 3 ft 6 in. wide by 6 ft 1¼ in. high. Corners are formed of L-shaped slabs of similar thickness but of varying width due to the overhang.

Each wall panel gets its main support from the floor slab of the story above, being hung by two galvanized-iron bolts (⅝-in. dia) cast in the top edge of the slab. These bolts were used to support the slabs as they were lifted into place. When a panel had been properly positioned these bolts were attached to the slab by the arrangement shown in Fig. 3. The lower edges of each slab then was secured to the edge of the lower floor slab by angle clips, as shown.

Much study was given to determining the best method of providing a vertical joint between these face slabs that would be both flexible and watertight and at the same time would not detract from the appearance of the building. In the end the simple joint shown in Fig. 3 was adopted. The aluminum strips that retain the mastic caulking compound are strips made for venetian blinds. They were sprung

FIG. 4. HOISTING PRECAST CONCRETE SLABS to place in the walls of the second floor of the building. The hoist line is attached to an equalizer beam, which is fastened to two hanger bolts cast in the top of each panel.

into place after the slabs had been set, then the caulking compound was pressed into place before the 2-in. tile was applied to the interior face of the wall.

A glazed tile is used to back up the interior slabs from floor to ceiling level and an unglazed tile in the space provided above the ceilings of each floor for air-conditioning ducts and electrical wiring.

Light weight was desired for the exterior wall slabs, and it was hoped that a nearly white exterior surface could be obtained that would be weather resistant, thus making unnecessary the frequent repainting that is common on most of the concrete faced buildings in Florida. For weight reduction, pumice concrete was specified except at the exterior face, where white quartz aggregate and white cement was used.

These face slabs were precast at the plant of Maule Industries, a large manufacturer of precast concrete products, to insure accurate casting and to facilitate a study to determine the best concrete mix and precasting method. Slabs were cast face down and some 30 experimental slabs were made before desired surface texture and uniformity of color was obtained. In the method finally adopted, a patented product known as "Control-Set" was spread over the face of the form, after which the concrete mix using quartz aggregate and white cement was placed in the form, followed by the pumice concrete and reinforcing wire.

Reinforcing consists of No. 4-gage galvanized wire on 3-in. centers, horizontally and vertically, as shown in Fig. 3, set one inch in from the exterior face, and No. 9-gage wire on 16-in. centers set one inch from the interior face.

The compound spread over the face of the forms retarded set of the cement close to the surface, which made it possible to expose the white quartz aggregate by wire-brushing the slab face after the forms had been stripped from the slab.

The building is air-conditioned throughout, the conditioning equipment being located in the mechanical room in the utility shaft on each floor and in the penthouse.

Robert Law Weed and Associates of Miami are architects for this building, which is nearing completion, and are one of the owners and occupants. Structural design work was done by Jorgensen & Schreffler. The construction contract is held by J. Y. Gooch Co. of Miami, Fla.

Cooperative study aims to improve health department sanitation services

More than 40 city, county and suburban health departments are engaged in a cooperative study of sanitation administration with the engineering section of the American Public Health Association. Object of the study is to increase efficiency of sanitation personnel and of sanitation services in the full time health departments.

Included in the study are measurements of the work load in each participating community, measurements of the time devoted to each program, and a study of the qualifications needed by sanitation personnel to efficiently carry on modern sanitation activities.

One of the aims of the APHA engineering section is to provide liaison between the APHA and other groups interested in similar or related objectives such as the sanitary engineering division of the American Society of Civil Engineers, the American Water Works Association, and the American Society of Sanitary Engineers.

Another aim of the special section is to help develop training and leadership among sanitation personnel and bring to the attention of qualified persons job opportunities in the field of sanitation.

More sanitary engineers are needed, particularly to cope with many new problems that have arisen during the past few years. One of these is the result of the growing sub-urbanization of the American population.

The need for sanitary engineers is one getting much attention of late. State and local health departments now have 107 professional engineer vacancies awaiting applicants.

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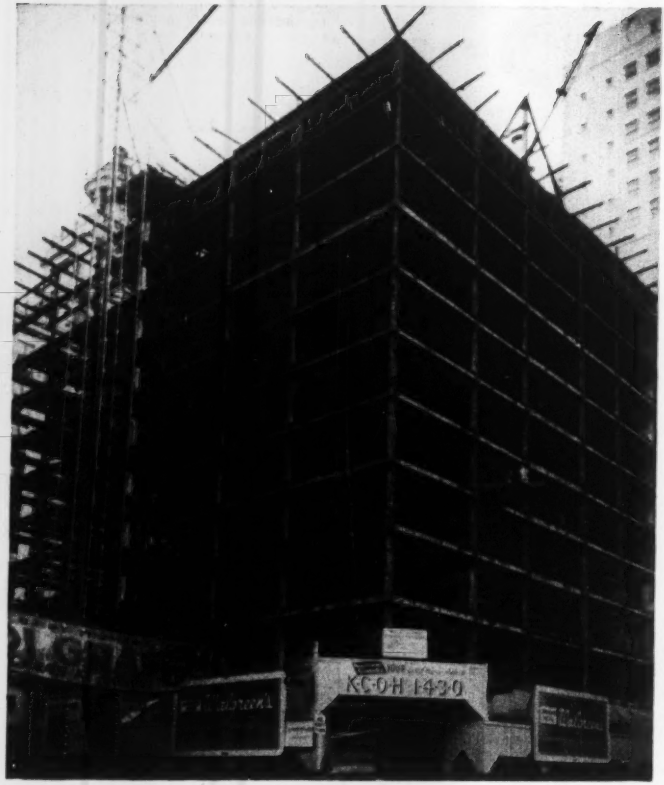

For this steel frame of a Houston building . . .

. . . Life begins at forty

R. B. Reilly
District Engineer
American Institute of Steel Construction
Dallas, Texas

THE OLD SAN JACINTO HOTEL in Houston, Texas, is no more. The 10-story building is being converted into an office building, everything being ripped out but the steel frame. Lighter floors, fireproofing and walls are being installed. Thus, for the steel frame, which was erected about 1911, it is truly a case of "Life begins at forty."

Many pounds of dead load are being eliminated through the use of lightweight construction. The new floors will be cellular steel decking with lightweight concrete fill. The decking will serve as ducts for electric wiring, making power available practically at every point in the office areas. Structural steel will be fireproofed with metal lath and vermiculite plaster. Exterior walls will have a light-colored brick facing, with limestone trim, and large window openings.

Old floors were reinforced concrete arches, haunched down to rest on top of the bottom flanges of the steel beams. The under side of the bottom flanges were fireproofed with plaster.

Aside from the saving in dead weight due to the direct replacement of the concrete arches with lightweight material, there was an additional saving: Had the old floors been retained, it would have been necessary to add a concrete fill on top to accommodate new electrical conduit.

• **Frame carries more live load**—The reduction in dead load will enable the steel frame to carry greater live load. Most likely, the old hotel was designed for a 40-psf live load, whereas the new office building will have to support a live load of at least 50 psf. With the decrease in dead load, the old frame will be able to meet the new loading requirements with a minimum of reinforcement.

A four-story penthouse will be added on top of one portion of the structure. Columns under this addition are being reinforced. In most cases, this is being done merely by adding plates and angles, but in some cases, columns are being encased in reinforced concrete to obtain composite column action.

The old steel beams were connected to the columns with riveted stiffened beam seats and top clip angles. Beam webs were not connected to the columns. Basement columns were seated on cast iron, ribbed bearing plates.

• **Steel in good condition**—After the structural frame had been bared, it was carefully examined. For all practical purposes, the steel was found to be in perfect condition. Much of the original paint could be seen, and it too was in good condition, considering the length of service.

It was particularly interesting to note that there was no evidence of corrosion either of the spandrel beams or basement columns. The old masonry walls apparently had completely protected the outer faces of the exterior columns and spandrels, and gypsum block and plaster, the interior faces and webs. The only bad corrosive condition was in exposed beams under the water tank on the roof.

Generally, new structural steel is employed only to accommodate changes in the floor framing plan. Beam connections are being welded.

Kenneth Franzheim is the architect for the reconstruction, Ward Butterwick the structural engineer, and W. S. Bellows Construction Corp. the general contractor—all of Houston, Texas.

Weekly bulletin summarizes defense production action

Defense Production Administration has begun issuing a bulletin that summarizes week-by-week developments along the defense production front.

Called the "Defense Production Record", its purpose is to transmit accurate and concise information on DPA orders and regulations and recommendations of industry advisory committees—along with facts concerning other activities of government defense agencies.

Copies are available through field offices of U. S agencies and departments.

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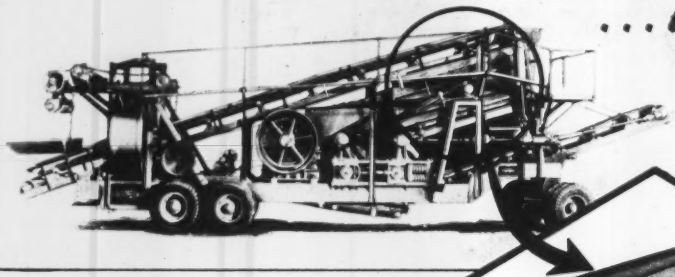

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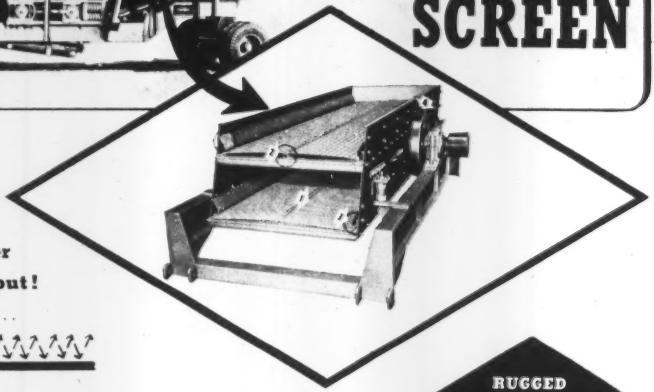

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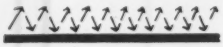

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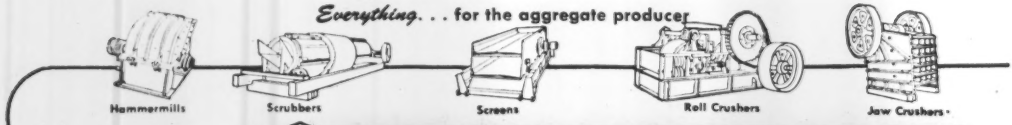

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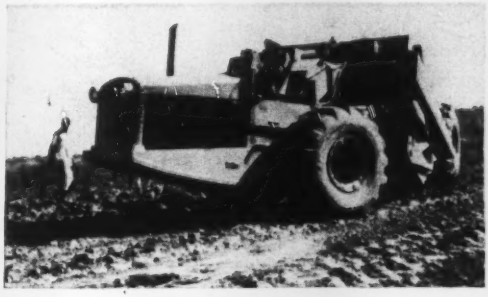


CONTRASTS AT HIRACUD DAM are provided by head transport of rock from the spillway section and by U. S. tractor-scraper transport on the earthfill dam.

First dams for India's great barren plateau

Waldo G. Bowman
Editor

Two dams—Hiracud and Tungabhadra—under construction on India's great eastward-pitched peninsular plateau—mark the initial step in a new broad scale development program affecting about a third of the nation's area. Now barren and largely unproductive, this 300,000 sq mi jungle and desert country is envisaged as an outlet for increasing population—once its seasonal rainfall is stored for irrigation and hydro power.

Hiracud Dam, a federal project, will initiate control of the Mahanadi River in the state of Orissa. Nearly three miles long—two-thirds in earthfill and one-third in concrete spillway sections about 150 ft high—it projects Indian dam building into a new scale of magnitude, requiring a change from hand labor methods to mechanized construction.

Tungabhadra Dam, joint project of the states of Hyderabad and Madras, will perform a similar function in the valley of the Kistna River. But in contrast to Hiracud, it is being built of hand-placed masonry, a type of construction familiar to Indian workmen, some 10,000 of whom—men, women and children—are strung out in well organized groups along its 6,000-ft length.

Later a third river of the plateau, the Godavari, will be brought under control by Rampadasgar Dam in Madras state, another federal project. And this job, even more than Hiracud, will be a test of Indian ability to cope with modern construction requirements. Entirely of concrete and 6,600 ft long, it will be 428 ft high and thus a major structure in every sense of the word.

The economic pattern for these projects already exists in Mettur Dam, a masonry structure completed in 1937 on the fourth, and farthest south, of the great east-flowing rivers, the Cauvery. Water from Mettur Dam irrigates a million acres in the state of Madras and generates power from a 50,000 kw plant. Chemical and textile plants have grown up around it, and the whole complexion of a once-useless area has been transformed. The present attack is focused on the much larger area of the north part of the plateau where a similar transformation has been a long-cherished dream.

• **New Scale for India**—Hiracud Dam, as stated, leads Indian engineering and construction into new fields—large scale earthmoving and mass concrete placing.

In addition to 11,000 ft of earthfill in the main dam, 17 miles of earth dikes have to be built to enclose the reservoir. One of the concrete sections—at the right abutment—is 2,572 ft long and includes, in addition to the spillway, a 592 ft wide powerhouse and a 60 x 360 ft ship lock. The other concrete section, 2,150 ft long, is several thousand feet out from the left abutment and includes a second spillway across another arm of the river, which at the dam site is divided into two channels by an island.

With an average height of 150 ft (max 180 ft) the spillway sections provide a total concrete yardage of about 2 million. The discharge capacity of the spillways is 1.3 million cfs.

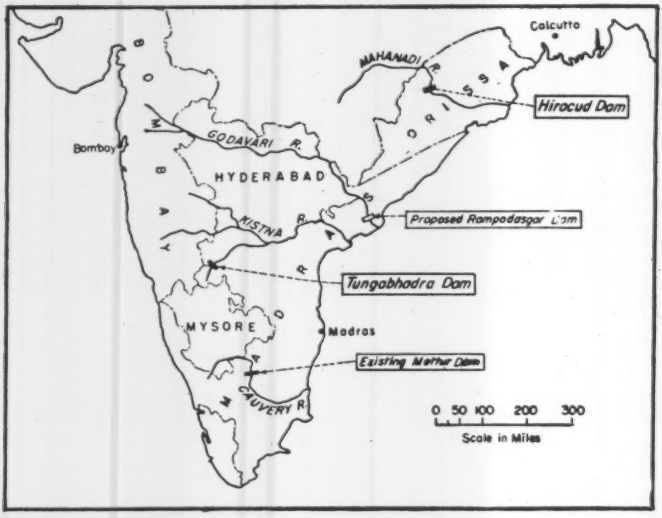
Emphasizing further the magnitude of the job, there will be a gravity irrigation canal on each side of the river and four lift canals, one on the right side and three on the left. The total length of the gravity canals will be 550 miles, of the lift canals 120 miles, to serve an irrigated area of 1.1 million acres.

The power installation will total 321,000 kw of which 225,000 will be at the main dam and 96,000 at a subsidiary plant 14 miles downstream on an 18,000 cfs power canal connecting the two. A dam is also required at this lower location, and it too will be a sizable earth structure—85 ft high, and 22,800 ft long including a 1,000 ft section in concrete, according to the plans.

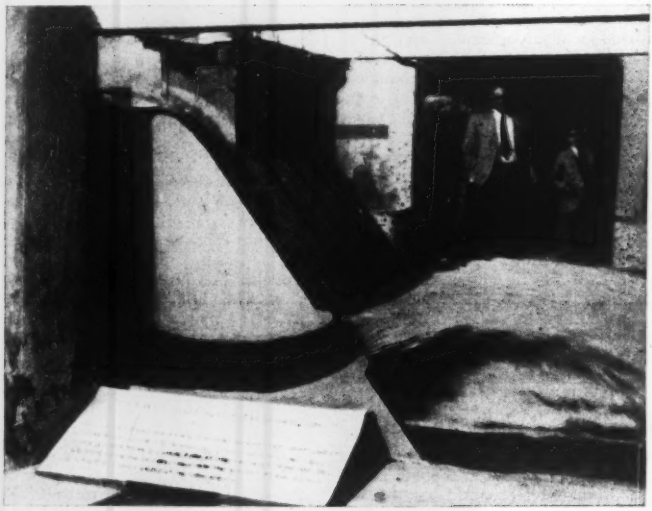
• **Sluices are design feature**—The principal design feature of the main dam is the use of 21 x 25-ft bottom sluices built into each of the 84 bays of the spillways. Normal floods will be passed through these sluices so as to maintain the reservoir level at the optimum elevation for power generation. Large floods will of course be taken over the spillway.

This type of operation—with the sluices—is expected to cause considerable silt to be deposited—perhaps as much as 13,600-acre-ft per year. But the dead storage of the reservoir—2.25 million acre ft of the 6 million ac ft total—assures a project life of well over 100 years—and there is a hope that the sluices may remove more of the silt than has been estimated on the basis of studies and model experiments.

Current construction at Hiracud's main dam is confined to foundation preparation, although about 500,000 cu yd of earthfill has been placed. Material is being deposited in 9 in. layers, wetted down by hose to give a 15% moisture content and compacted to 6 in. by sheeps-foot rollers and the rubber-tired haulage equipment. A material with a density of 125 lb per cu ft



DAMS FOR INDIA'S BAD LANDS. Storing seasonal flow of great rivers of the peninsular plateau will increase country's potentially productive area by a third.



HIRACUD'S SLUICES are tested on a model. They will be used to pass floods of medium size. Big ones will bring the spillways into operation.

results from this compaction procedure.

• **Power canal comes first**—In the meantime, highest priority has been given to the power canal and the subsidiary dam downstream—so that some tangible progress in the form of generated power can be pointed to during the long construction period contemplated for the entire project. About 200,000 cu yd of earth has been placed in the dam and some 550,000 cu yd of excavation completed in the power canal.

Most of the canal work has been done by manual labor, but two walking draglines are being assembled to speed the work. On the entire job about 100 pieces of American construction equipment—shovels, tractors, graders, scrapers and wagons—are being used. Makes represented are Lima, Bucyrus, Lorain, P & H, Euclid, Caterpillar, LaPlant-Choate, Cletrac, Koehring, Austin-Western, Le Tourneau and Sterling. To date, however, the Hiracud operation is far from mechanized. Lumping work on the dams and all of the canals together, it is estimated that the total labor force is in the neighborhood of 30,000.

The total cost of the Hiracud project is set at $95 million, of which $12 million is charged to flood control, $22 million to irrigation, $59 to power and $2 million to navigation. The original designs of the main dam were made by the International Engineering Co., Denver, Colo.

• **Precast bridge forms**—Priority at Hiracud was also given to the construction of two bridges—one over the Mahanadi and the other across the power canal—in order to provide easy access to all parts of the construction project.

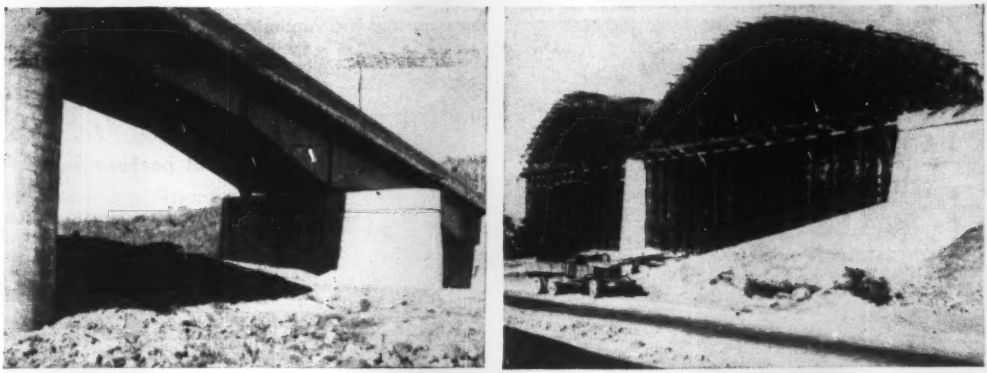
The Mahanadi bridge, now completed, is notable for its use of precast concrete units as forms for its girders and 24 ft roadway. Of concrete deck cantilever type it consists of twenty-five 100 ft spans on masonry piers, built wide enough to accommodate a future railroad deck if traffic increases warrant.

The present highway bridge consists of two lines of box girders 12 ft deep at the piers and 5 to 6 in. at mid-span. Precast slabs were used for the bottoms of these girders, while hollow blocks, open top and bottom, were set one on another to provide the side forms. Filled with concrete they furnished the permanent outside faces of the girders. Precast slabs were also used to span between the girders and take the poured-in-place deck. Falsework consisted of steel military bridging sections of British origin.

The cost of the Mahanadi bridge, as presently built, is said to have been about $300 a running foot.

The second bridge, being built across the power canal, is a concrete bowstring with two 154.5 ft spans. Its roadway is also 24 ft wide and there are two 5 ft sidewalks on either side. Precast blocks and slabs similar to those used on the Mahanadi railroad bridge are being used in the cross beams and deck slab of this bridge also.

It is interesting to note that the good experience with the precast formwork on these two bridges has led to studies of the use of precast concrete forms about 4 x 4 ft square for the faces of the concrete sections of both the main and subisidiary dams at Hiracud.



BRIDGES OF HIRACUD PROJECT made extensive use of precast concrete forms. Hollow units and slabs formed the girders and floor of the Mahanadi River cantilever bridge (left) and the cross beams and floor of the tied concrete arches of the bridge that crosses the power canal (right).

• **Old stuff for India**—Tungabhadra Dam is at the other end of the scale from Hiracud. And it's at the end that the Indians know best. Of hand-placed masonry, its bulk is awesome to a foreigner used to mechanized operations, but India's labor approaches it with a familiarity that is bringing its 6,000-ft length slowly out of the foundation trench which is 46 ft deep at the deepest point.

Tungabhadra Dam will have a volume of 52 million cu ft, of which 32 million is granite rock and 27 million mortar. It will be 130 ft high, and the center 2,300 ft will be an overflow spillway.

• **Two-stage product**—Both power generation and irrigation supply will be the product of Tungabhadra, which is being built jointly by Hyderabad and Madras, each state building the half on its side of the river which here forms the boundary between them.

On the Hyberabad side, the irrigation canal will be 149 miles long, of 7,000 cfs capacity, and will irrigate 671,000 acres. Power will be generated at the dam and at four falls on the irrigation canal. The ultimate installed capacity is set at 110,000 kw, with a possibility of 150,000 kw.

The canal on the Madras side will be 225 miles long and will irrigate about 300,000 acres. Its capacity will be 2,500 cfs, which at one river crossing will be accommodated in a 2,400 ft long concrete box aqueduct already completed in 58 spans of 35 ft each.

Power will be generated at two powerhouses, the first at the dam and the second at the fifteenth mile of the irrigation canal where a fall of 110 ft is available. Initial installation at each power plant will total 23,500 kw, with provision being made to increase this to 45,000 kw.

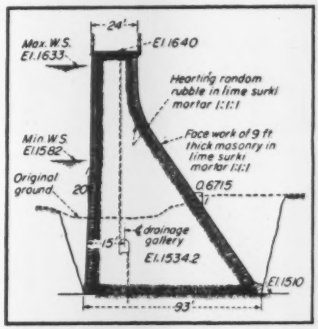
Tungabhadra reservoir will have a storage capacity of 2.6 million acre-ft and a spillway with a discharge capacity of 650,000 cfs, about twice the maximum recorded flood. It is said that this large discharge capacity was adopted at the insistence of the Hyderabad engineers, those in Madras wanting to settle for much less. The 2,300-ft spillway will be topped by 33 lift gates of 60 ft span.

• **Hand job**—Tungabhadra's chief interest rests in its hand-placed masonry, a type of construction which, although it will produce a good dam, can only be used where a surplus of cheap labor is available and speed of construction is not important. Even though a labor force of 10,000 is being used at Tungabhadra, masonry output is averaging only 27,000 cu ft a day, indicating an 8 to 10-year job. To date, about 25% of the total masonry for the dam has been placed.

In view of India's urgent need for irrigated land, Tungabhadra construction is out of step with the times, except as a make-work operation. Within this limitation, however, neither its design nor construction is lacking in efficiency nor economy.

The granite rock for the masonry is quarried on an island a mile below the dam and also in the Hyderabad hills about 4 miles away. It is moved to the dam by industrial railway and trucks which, in addition to rock drills and some mortar mixers, constitute the equipment of the job.

• **Special mortar admixture**—Coursed masonry of dressed stones is used for a 9 ft thickness on the upstream and downstream faces of the dam, with random size stones placed for the remainder. Cement mortar is used for the spillway sections and in areas

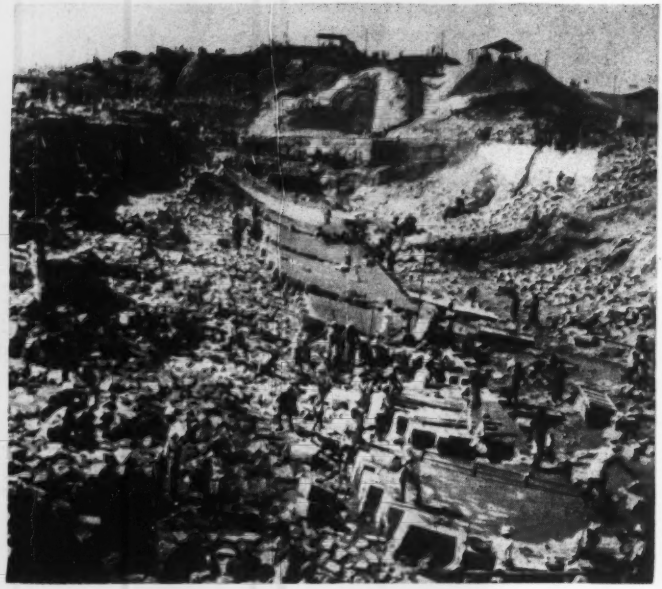


TUNGABHADRA DAM has this section for 3600 ft of its length. The remaining 2300 ft is a spillway section 100 ft high topped with 30 ft gates.

around sluices and penstocks, and lime mortar elsewhere. Both mortars contain a brick dust admixture that is widely used in India to improve workability and, by a claimed pozzolanic action, to reduce the heat of hydration and increase impermeability.

The admixture is called surki. It is made by mixing crushed clay with water to form small balls which are first air-dried and then loaded into kilns for burning. Part of the product is taken to mortar mills where it is ground and mixed with lime, sand and water for use in the interior portions of the dam. The remainder of the burned clay is ground into a fine powder to be used in the cement mortar, where it replaces 20% of the usual cement content. A total of 3.4 million cu ft of surki will be required for Tungabhadra Dam.

The mortar mixtures are worth recording. For the interior of the dam and for the exterior of the non-spillway sections, the mortar is lime, surki



SPILLWAY CONSTRUCTION at Tungabhadra requires a facing of dressed granite stones. The labor force on the dam totals 10,000.

and sand in the proportions of 1:1:1. For the interior of the spillway sections a 1:4 mixture of red cement (i.e. including 20% surki) and sand is used to make mortar.

A richer mix, 1:2½, is specified for both the up and downstream faces of the spillway section.

With masonry work now in full swing, two masons and eight helpers—the usual size gang—are completing 130 cu ft in 8 hr. About 45% of this is mortar, the remainder granite stones. In the meantime, and since work began in 1948, excavation of 21 million cu ft of earth and rock has been completed as has the blanket grouting of the foundation—in three rows of 20-ft deep holes totaling 125,000 ft. When the dam reaches about the 100 ft level a line of high pressure grout holes will be drilled from the drainage gallery. These grout curtains are counted to make the foundations as tight as the masonry of the dam is expected to be, thus assuring the stability of the structure as well as the conservation of the stored water for use in food production and power generation.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Damages resulting from defective work

In an action brought by a contractor to recover a balance allegedly due under a contract for the construction of a house, the owner counterclaimed damages resulting from defective construction. Most of the defects were structural and incapable of being repaired without reconstructing a substantial part of the building which could only be done at a great sacrifice of work and material which had already been put into the building. While some of the defects were minor, any attempt to separate the minor defects from the serious ones would only lead to confusion. Under these circumstances, the court held that the measure of damages that the owner was allowed to recover was the diminished value of the house resulting by reason of the faulty work as against what it would have been worth if it would have been properly constructed.[1]

(1) Mohs v Quarton, 44 N.W. 2d 580, Supreme Court of Wisconsin, Nov. 8, 1950.

Substantial performance

A contractor seeking to recover payment for work done under a construction contract, has the burden of showing that he has substantially performed his contract and that there has been no willful refusal to perform any part of it.[1]

The court in its opinion in this case stated: "The doctrine of substantial performance is intended for the protection of those who have faithfully and honestly endeavored to carry out their contracts, so that their right to compensation shall not be forfeited by technical or unimportant omissions or defects. Therefore it is incumbent upon him who invokes this protection (as does plaintiff-contractor here) to present a case in which there is no wilful omission or departure from the terms of the contract. If the plaintiff here fails so to do, the question of substantial performance is not to be submitted to the jury."

In the case above referred to, the defendant, the party for whom the work was being done, claimed and proved that the plaintiff-contractor did not substantially perform the contract in that certain specified materials and labor called for by the contract had not been supplied and that the contractor had refused to complete the work in spite of requests to do so. Under these circumstances, the court held that the contractor was not entitled to recover any part of the balance claimed to be due him under the contract.

(1) Williard Sales & Service, Inc., v Stevens, 76 A.2d 225, (Superior Court of Pennsylvania, Nov. 14, 1950), and numerous cases there cited.

Occupancy as constituting acceptance of work

"According to the weight of authority, the mere occupancy and use by plaintiffs [owners] of their unfinished dwelling do not constitute an acceptance of the work as complying with the contract or amount to a waiver of defects therein.[1] As owner has a right to occupy his house at any time he chooses, and it takes more than mere occupation to constitute an acceptance of work not done by the contractor or in accordance with the contract.[2]"

(1) 9 Am. Jur., Building and Construction Contracts, sec. 53, p. 40, n. 7.
(2) Higby v Hooper, 221 P.2d 1043, Supreme Court of Montana, Aug. 28, 1950, and numerous cases there cited.

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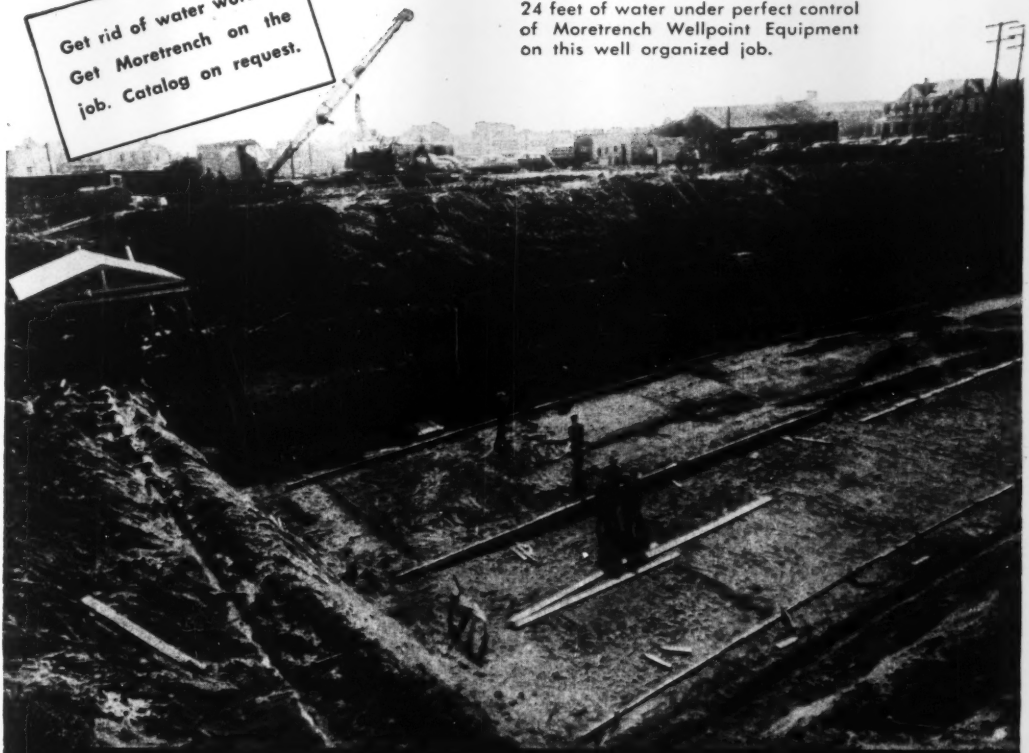

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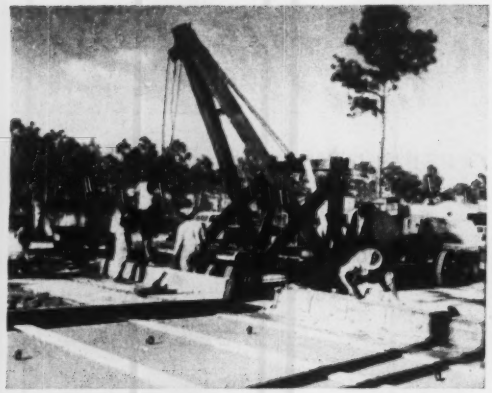
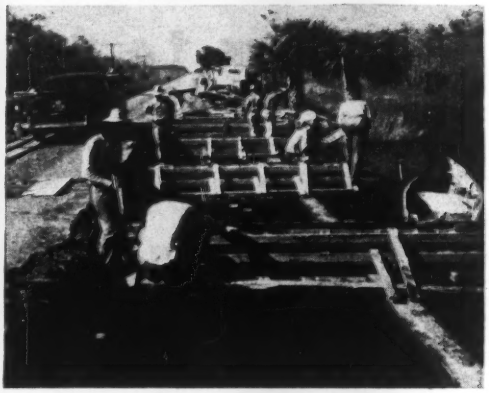
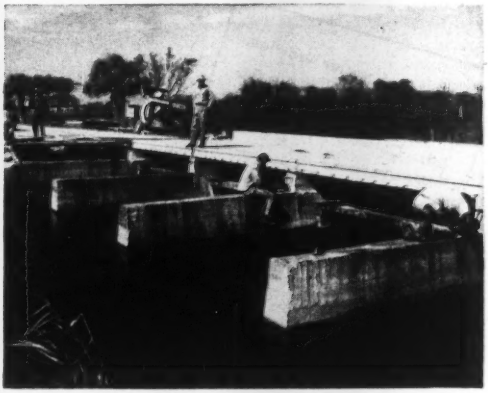


1 CONCRETE SLABS, 15 ft long, for building highway bridges are precast in maintenance yard. Meanwhile . . .



2 TRAFFIC uses half an existing timber bridge, while the other half of the deck is being replaced.

3 PRECAST UNITS are set 10 in. apart on the piers. Later, the space between them is filled with concrete.



4 THE NEW DECK is opened to traffic, while the second half is built. Florida State Road Dept. photos.

Precast bridges save state money

MAINTENANCE FORCES of the Florida State Road Department are rebuilding worn-out timber bridges on U. S. 41 with precast concrete. The cost is low and there is little delay to traffic. They precast reinforced concrete slabs at a maintenance yard near South Miami, truck the units to a bridge site, and reconstruct half the structure at a time, while traffic uses the other half.

Most of the existing timber bridges have 15-ft spans and a 20-ft roadway. Utilizing the old concrete substructures, the new concrete bridges retain the 15-ft spans but increase the roadway width to 24 ft.

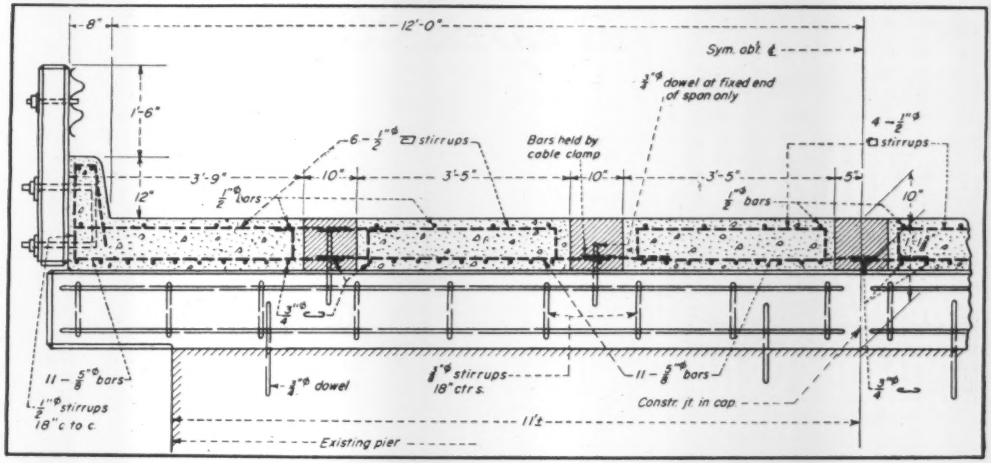
With treated timber selling at $195 per Mfbm in the Miami area at present, cost of replacing the old structures with new wood would be $660 for a 15-ft span, according to the Florida maintenance engineers. Not including the investment in the permanent casting yard, cost of rebuilding with precast concrete is $550. (Common labor costs about $0.60 per hour.)

Bids taken in 1946 for replacement with cast-in-place concrete totaled $3,000 for a 15-ft span. Rebuilding with precast units is being accomplished for practically the 1946 bid price of detours alone.

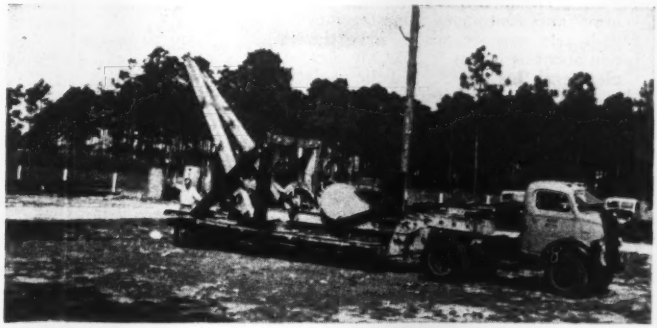
• **Fast work**—The crew assigned to this work consists of a superintendent, a foreman, a carpenter and seven laborers. These men can precast one full-width 15-ft bridge span per day. And they can remove existing stringers and timber deck, install the precast units and have a five-span bridge open in nine days, with only slight interruptions of traffic. No detours are needed.

From Oct., 1949, to April, 1951, twelve timber bridges were replaced. This work involved 750 lin ft of 24-ft roadway.

• **How they do it**—Six precast units, 10 in. deep and 15 ft long, comprise a span. The two outer units are 3 ft 9 in. wide. They are cast with an integral 12-in. deep curb, with bolts in



5 BRIDGE ROADWAY is made up of six precast concrete units supported on risers cast on top of existing piers.



6 CRANE for handling precast units was built from old parts. (ENR staff photo)

place for attaching concrete posts for guard rails. Interior slabs are 3 ft 5 in. wide.

Units for two 15-ft spans can be cast at one time. (A 4-in. thick, 30x40-ft concrete slab serves as a casting floor in the maintenance yard.) The six slabs comprising a span are formed in the same relative position they will occupy in the bridge. For non-standard length spans, the crew need merely stretch a string across a set of forms at the angle of the existing piers, making it possible to position end forms exactly.

Wood side forms are held in place by bolts anchored in the casting slab. Reinforcing bars are inserted in the forms and tied. Then, concrete is poured into the forms. The crew uses a 2-bag mix, with high-early-strength cement, which yields a concrete having a compressive strength of at least 3,000 psi in seven days.

About one hour after the concrete has been poured, two inserts with eye-bolts screwed into them are placed in each unit, for lifting and moving the slabs. Before the concrete has fully set, a laborer gives each bolt a half turn to break any bond that might have been created with the concrete.

After 24 hours, the units can be moved from the casting slab to a nearby storage area, where they are cured prior to shipment to a site.

Rather than tie up a truck crane in the casting yard, maintenance engineers built up a crane from old parts, principally by rescuing a 10-ton trailer from a junk pile. This equipment proved efficient in handling and loading the slabs on trucks in the yard.

• **At the site**—At the site, the precast units are unloaded from trucks with a 5-ton truck crane, which also places them on the piers.

First step in the field operation is the removal of the timber deck and stringers from half the width of the bridge. Then, existing piers are built up with cast-in-place concrete, so that when the precast slabs are installed the roadway will be at the correct elevation. These risers are doweled to the old piers. Dowels for anchoring the precast units to the risers are also inserted in the risers.

The slabs are placed 10 in. apart on the piers, between the dowels, with transverse reinforcing projecting out sufficiently from the units to give a 5-in. lap in this space. These bars are fastened with cable clamps. Then, the 10-in. opening is filled with a 6-bag concrete mix, made with high early-strength cement, thus tying the structure together. The bridge is opened to traffic 24 hours later.

Maintenance engineers point out that this type of construction has this advantage: Should it be necessary at a later date to replace any portion of the new superstructure, this operation can be accomplished easily. Or, if desired, the superstructure can be detached in units, picked up and moved to another site. Holes left after the eyebolts have been taken out are filled with tar or joint filler, which can be removed; then, lifting bolts can be screwed into the inserts for handling the units.

Winston Carlton, assistant district engineer, District 4, conceived the basic scheme for the precast design. The final design was worked out by the State Road Department in Tallahasse, under the supervision of W. E. Dean, engineer of bridges. J. M. Watson is district engineer, District 4, which includes the southern part of Florida. The South Miami maintenance yard is under the supervision of Kirby S. Storter, maintenance engineer, with W. B. McKay as superintendent.

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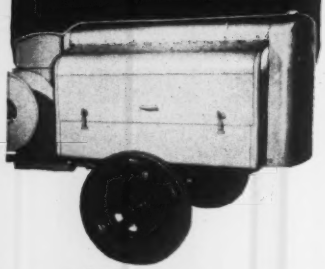

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READER COMMENT

About Three Rivers bridge

Sir: I would like to add my comments regarding the recent bridge collapse at Three Rivers, Quebec (ENR Feb. 8, p. 23, Mar. 15, p. 21).

I have found that steel expansion and contraction, together with extreme weather conditions, play a greater part in the life of many structures than do the chemical and mechanical properties, such as those specified by A7 of the A.S.T.M.

Here is my opinion as to the immediate cause of the collapse of the Three Rivers Bridge. First, however, may I state that some 50 years ago the heavy trussed steel roof over the Central Railroad Station at Liverpool, England, was lifted off its bearings as much as 3 to 4 in., due to extreme weather conditions. There had been heavy and continuous rain, together with zero weather, which froze the rain about as fast as it fell. My people, Tench & Co. Ltd., had the work of jacking up the bearings, removing the ice, placing heavy lead sheets and felt over the lead for the truss bearing plates to rest on. This method was entirely satisfactory.

My opinion in regard to the Three Rivers Bridge spans is that inclement weather caused ice to form between the end posts and bearings of each span. This set up a buckling movement past the center of gravity, imposing torsional stresses which caused the center span of the three to push them off their pedestals.

RICHARD TENCH
Structural Engineer
San Francisco, Calif.

Ways to cut weight

Sir: Your article on weight saving in building construction (ENR April 26, p 39) is indeed timely. Structural steel is in critically short supply and apparently is going to get even tighter. Because of this, it becomes absolutely essential to design all buildings as lightweight structures for the important reason of conservin steel.

In your article, you point out that lightweight prefabricated steel floor panels and lightweight plaster fireproofing are the two major weight-saving features of several buildings now under construction in Los Angeles. As the largest manufacturer of lightweight perlite aggregates, we have made an extensive study of lightweight building construction and would like to add three more major weight saving features:

1. The building should be designed with a thin, lightweight curtain wall. The conventional curtain wall is generally from 14 to 16 in. thick. Practicable curtain walls can now be built with a total thickness of only 7 in. that will meet all code requirements.

2. Stairwells and elevator shafts should utilize thin, lightweight concrete masonry units. Conventional construction calls for the use of 8-in. cinder block and brick. Lightweight concrete masonry units, 4 in. thick, have been successfully used. They too, of course, meet all necessary code requirements.

3. All normal inside base-coat plaster should be made with lightweight aggregates. Lightweight-aggregate plaster weighs about two-thirds less than ordinary sand plaster.

We estimate that, if the three features mentioned above, combined with the two features mentioned in your article are fully utilized, the dead weight of a building could be reduced as much as 80%. This can easily mean a structural steel saving, in an average commercial building, of 1,000 tons.

There is no doubt that the ideal lightweight building is nearing realization. Progress cannot be stopped. Any reluctance on the part of architects and engineers to such a major change in basic design and conventional engineering practices is natural. However, if we are to have tanks and bullets and buildings and butter, we must voluntarily and conscientiously use every available method and material to conserve critically short materials, such as structural steel.

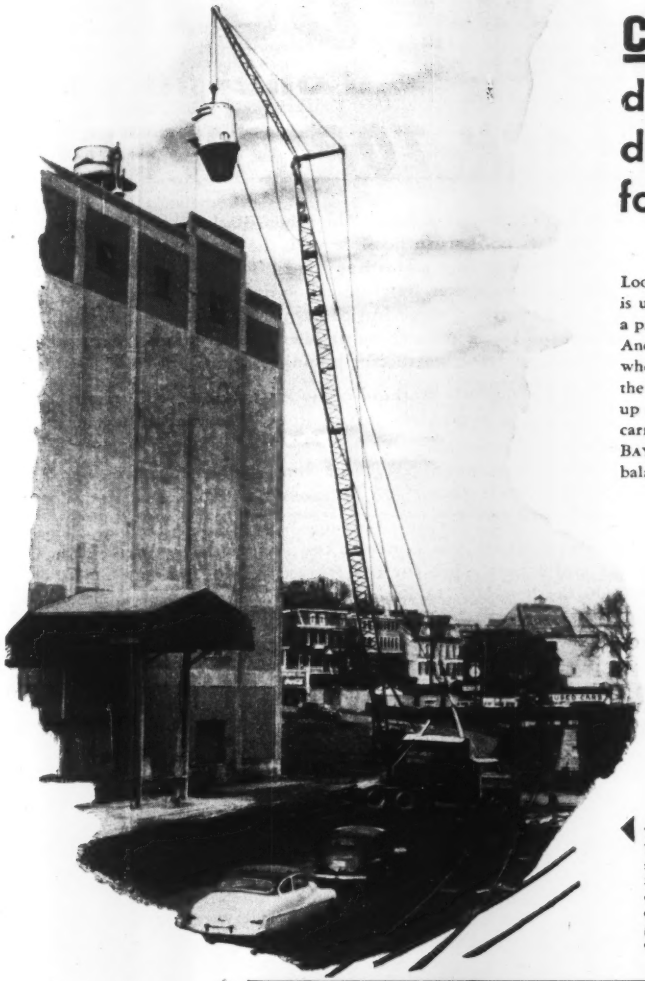
DONALD H. GOTT
General Sales Manager
Great Lakes Carbon Corp.
New York, N. Y.

Work in public streets

Sir: Your editorial concerning the appointment of a committee by the East Bay Chapter of the American Public Works Association with a view to unifying regulations and methods of issuing permits for the installation of underground utilities was noted with interest (ENR Mar. 1, p. 21).

The Southern California Chapter of APWA not only intends to make a study of the above-mentioned problem, but also to re-examine procedures on work projects performed in public

(*Continued on page 45*)



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Look closely . . . you'll see that this contractor is using a BAY CITY CraneMobile to maneuver a pretty big tank right down onto its lag bolts! And that's typical of CraneMobile performance whether the job calls for delicate operations high in the air or the precision handling of heavy loads up to 25 tons near the ground. Both crane and carrier are engineered and built as a unit by BAY CITY to give you a perfectly integrated and balanced mechanism with a low center of gravity.

Because of the design, CraneMobile combines rugged, heavy duty construction with flexible, mobile service and good roadability. CraneMobile gives you more power than you'll need, desirable line speed and accurate boom and load controls. Let us show you why contractors everywhere have learned to depend on the BAY CITY built CraneMobile . . . write for latest catalog or see your nearest dealer.

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This CraneMobile "180", owned by Forsyth's Transfer and Storage of Hagerstown, Md., is setting a grain processing tank atop the D. A. Stickell & Sons feed mill. The boom sections and 15-ft. jib used here were attached quickly and easily because BAY CITY boom sections are pin-connected and furnished with socketed pendant cables.

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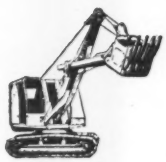

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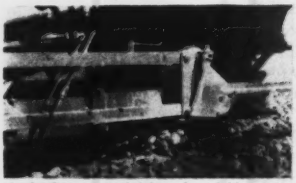

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The Adnun is free from excess mechanisms, it does not have to be continually rebuilt and it can be moved without a trailer at reasonable truck speed.

These advantages mean money in the contractor's pocket, and savings and a better job for the Highway Department. Let us send you the booklet, "11 Basic Things . . .". You'll find it interesting. Just ask!

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Adnun wheel design assures smooth steering without jerks or oversteering. Hand work is reduced and you are free of crawler repairs.

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(Continued from page 42)

streets and to conduct studies for the standardization of ordinances, specifications, and government regulations.

This is the approach of our chapter: It is proposed to have the various subjects presented for discussion at all-day meetings of the members by representatives of contractors, public utilities, traffic authorities, governmental agencies, engineers in private practice, and taxpayer associations. Each such representative will be required to prepare, in advance, a written brief of the arguments to be made at the meetings, for distribution to those attending and others.

It is also hoped that the audience will participate. A committee appointed in advance, comprised of well-qualified persons acquainted with problems of the respective groups, will summarize at the conclusion of the series of meetings. The summaries will form the basis on which recommendations and appropriate actions will be taken to accomplish the purpose of the respective projects.

The first meeting of Southern California Chapter on "The Reexamination of Work Projects Performed in Public Streets" will be held in April. At that meeting the contractors will be given the opportunity of explaining their problems and expressing their "gripes." The other representatives will be given similar opportunities at successive meetings.

It is hoped that at the conclusion of this series of meetings all of us will become acquainted with each others' problems and with the suggested solutions, and that action will be taken by all concerned to the end of simplifying and improving present procedures and relationships.

MILTON OFFNER
State Chairman, Southern California
American Public Works Association

Israel Plan author

Sir: Congratulations on the fine coverage of Israel problems in "Israel banks on its new immigrants" (ENR March 22, 1951, p26).

There is one omission that should not go uncorrected. John S. Cotton, internationally famous consulting engineer with headquarters in San Anselmo, Calif., for the last two years has been in full charge of the preparation of the "Master Plan" for the development of all irrigation and power in Israel. The last two interim reports of the "Master Plan" are signed jointly by Mr. Cotton and James B. Hays.

D. B. GUMENSKY
Water Department
Ministry of Agriculture
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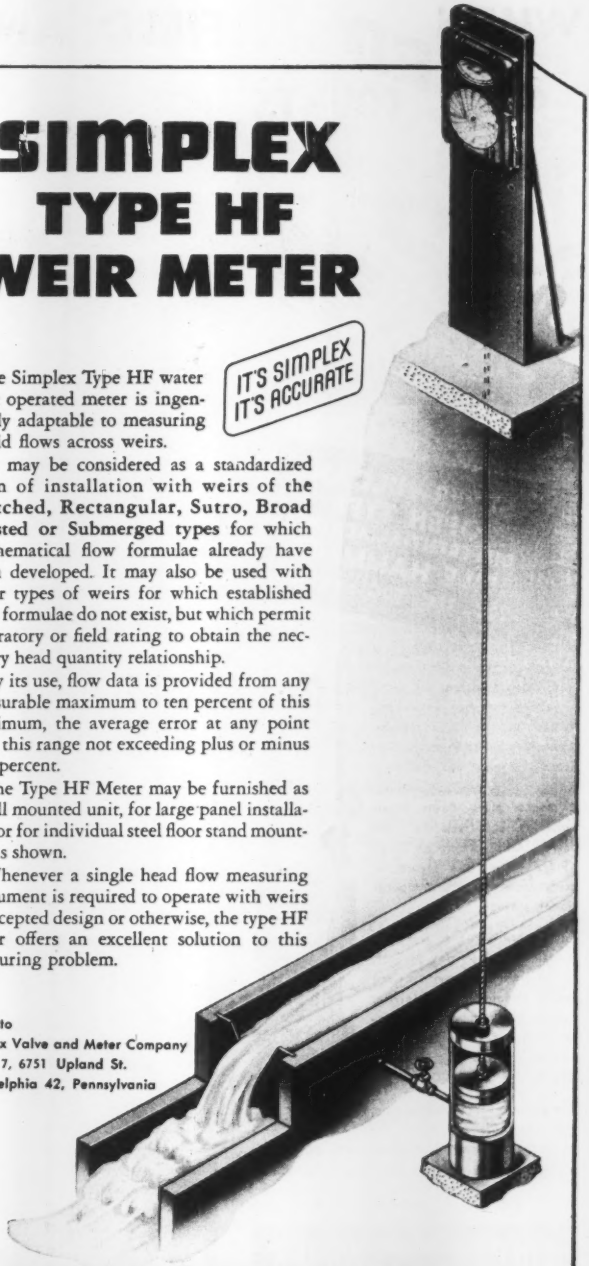

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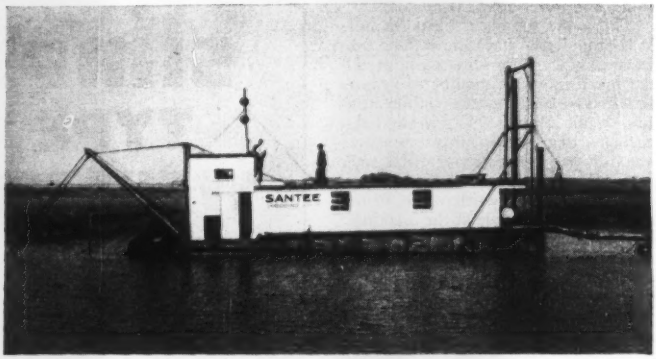
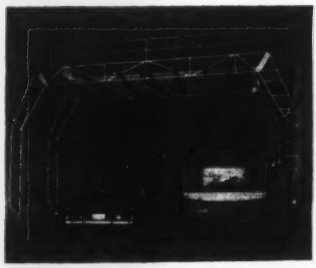
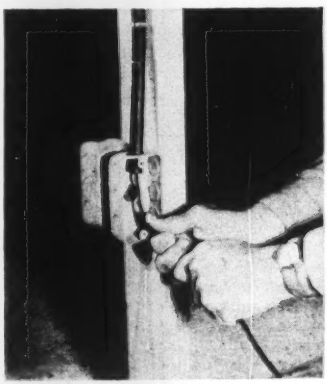


SMALL SUCTION DREDGE pumps 150 to 250 yd per hr through a pipeline up to 2,000 ft long. She has a 34-in. "egg-beater" cutter head, and can dig down to 17 ft. The 47-ft hull is a former landing craft. Two diesels turn generators supplying 110-v dc for pumps and hauling and hoisting machinery. She has 7 forward speeds, 7 reverse speeds, draws 4 ft of water, and has a 14-ft beam. Crew consists of 4 men.—Santee Dredging Co., Charleston, S. C.

ROLLING TUNNEL SCAFFOLD—To facilitate installation of a new lighting system in the twin Lake Way tunnels at Seattle, Wash., the city engineering department designed this special rolling scaffold. Designed to span the roadway and fit the bore of the tunnel, the scaffolding permitted work to proceed without interference to traffic. It provides a wide working platform at the level of the lights. Made in demountable sections, the unit can be taken apart and stored for future maintenance. It was built by the Safeway Steel Scaffold Co. at a cost of $1,500.





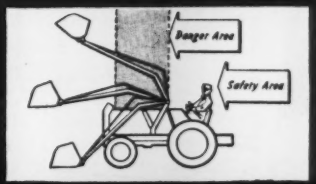
PLASTIC TELEPHONE CONDUIT—Code Electric Co. in Houston, Texas is using plastic pipe as conduit for telephone wires. The pipe is installed during construction to permit telephone wires to be strung through to the desired telephone location at a later date. Telephone service men connect 'phones by running a spring-steel fishing wire through the conduit.—Carlon Products Corp., Cleveland, Ohio.

Operators Know . . . the

LULL Shoveloader is SAFER TO OPERATE

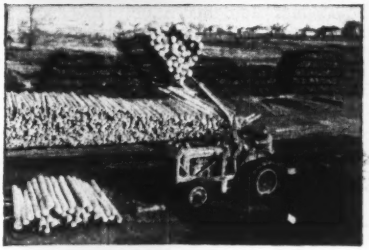
SAFER

from MOVING PARTS and FALLING ROCKS



WOULD YOU like to operate a loader which required you to sit directly between the working lift arms? Of course not! Neither would operators. They too know the danger of falling boulders and moving arms.

● SIT IN SAFETY in the LULL SHOVELOADER . . . designed for maximum operator safety.



OPERATORS KNOW their position on a loader is important to their safety. On a LULL SHOVELOADER, they know they are well clear of moving arms and falling rocks. They know they have full freedom of movement without fear of the giant they operate.

OPERATORS ARE CONFIDENT in the SHOVELOADER'S safe, versatile operation. They like its safer lifting, loading, scraping, bulldozing, digging and transporting. Accidents cost man hours, law suits, and increase insurance rates. Get the facts about LULL SHOVELOADER'S safety today!

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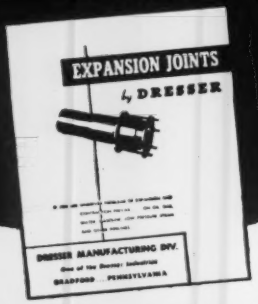

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DRESSER MANUFACTURING DIV.
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One of the Dresser Industries

FOREIGN

AUSTRIAN HOUSING WORK—Housing for 272 families is nearing completion in this project in the ancient city of Salzburg, Austria. The project represents a triumph of American determination over such odds as language differences, complicated Austrian labor organizations and antique contracting methods. Each building on this project involves eleven different types of contractors, for example.

Army engineers build Austrian homes

In their efforts to provide housing and facilities for U. S. personnel in Austria, the Corps of Engineers for the U. S. Forces in Austria spent more than $6,365,000 during the last calendar year.

The construction—almost always involving a complicated translation system and a careful schooling of local labor and contractors—has engaged the services of hundreds of Austrian firms and given employment to thousands of Austrian workers.

While the greater part of the construction has been for the use of American personnel stationed in Austria, much of it will be left for the use of the Austrian nation whenever occupation forces are withdrawn.

At the moment 1,840 Austrian workers are regularly employed by USFA engineers, on a monthly payroll totaling $68,000. About 3,000 other Austrians make up the forces employed by individual contractors on the work.

• **First rehabilitation**—For nearly four years after the end of the war, U. S. Corps of Engineers personnel in Austria were engaged primarily in restoration of facilities. However since early in 1949 the work has been devoted to such problems as housing. The first major undertaking to relieve this shortage was instituted in February, 1949, when a former displaced persons camp at Bindermichl, in Linz, was rehabilitated to provide 183 apartments. These were later increased to 203.

A year later, the Engineers were assigned the additional task of building more family housing, and $4,846,000 was earmarked for the project. Plans for thirty-four apartment buildings were drawn up, providing 468 apartments of varying sizes. Twenty of these buildings are located in Salzburg. Three other buildings were apportioned to the town of Wels; five are being built in Saalfelden, and five in Linz.

Other work done includes the construction of two large swimming pools for Austrian children, three schools, a chapel in Saalfelden, and a modern hospital in Linz.

• **A Tower of Babel**—To do this job has required wisdom and patience. All contracts, specifications and notations on drawings must be written both in German and in English; the proper conversion of measurement units must be carefully assured—these including yards and feet to meters, heating and temperature units, wire sizes and transformer units, stress measurements of building materials.

To add to the difficulties, the Austrian contractors are unhappy with the Americans' admiration for speed and efficiency. They contemplate unhappily the idea of building a complete apartment house in six months. Unfamiliar with latest technical know-how, they rely heavily on hand labor, still mix concrete in one-sack ma-

(Continued on page 50)

20 Million Yard Proof of Bucyrus-Erie Performance

Consistently high output regardless of weather or ground conditions makes Bucyrus-Erie walking draglines the choice for jobs like this twenty-million-yard channel improvement project in Louisiana.

One important reason is the exclusive Bucyrus-Erie walking mechanism for safe, smooth travel over soft or uneven ground. Others are strong, simple design and construction, assuring reliable performance when working in remote locations, and quickly responding controls for fast, efficient operation.

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Typical examples of Hewitt-Robins *specially engineered rubber hose are:*

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Foreign . . .

chines with uncontrolled bank-run aggregate, and guess at water content.

Another serious difficulty is the steadily increasing cost of construction. The Austrian construction industry is generally small, without much risk capital. As a result, Austrian construction contracts must be sliding-scale affairs, although U. S. Government regulations require fixed fee contracts as far as possible.

Foreign Briefs

Cement from Europe—Western Europe can supply the United States with substantial quantities of cement in the next five months, according to the Economic Cooperation Administration. The source countries could include the Federal Republic of Germany, Belgium, Italy, Denmark, Sweden and Norway. A survey indicates that shipments could reach 20,000 metric tons a month.

Guatemalan roads—A 6-year highway construction program calling for the expenditure of more than $62 million has been prepared by the director general of roads of Guatemala. The program seeks an orderly increase and improvement of the highway system, including highways to many areas which either have none at all or very inadequate road communications. Officials are studying a combination of an internal bond issue and an external loan to finance this work. Guatemala's credit is considered good.

Credit for Haiti—The Export Import Bank of Washington, announcing a new $10-million expansion of credit to the Republic of Haiti, said the island government had agreed to employ U. S. contractors and engineers to carry out construction work planned. The new loan—coupled with a previous $4 million credit—will be used to finance equipment, materials and services required for flood control, irrigation storage, and irrigation, drainage and agricultural development in the Artibonite alley. Total cost of the work is estimated at $19.7 million. Major single items will be construction of a dam at Peligre, with provision for later installation of electric power. Development of the valley has long been a high-priority project of the Haitian government. Haitian engineers, aided by engineers of the Institute of Inter-American Affairs, and Knappen, Tippetts, Abbett Engineering Co. of New York, have been working on various phases of the program since 1948.

Announcing

Kodagraph Autopositive Paper Translucent

a new photographic intermediate material that speeds up print-making . . . drafting

30% *more translucent* than "regular" Autopositive —for faster quantity-print production

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Like "regular" Autopositive, *Kodagraph Autopositive Paper, Translucent* can be handled in room light . . . prints directly to a positive in familiar reproduction equipment . . . is processed in standard photographic solutions. It reproduces original detail sharply, crisply . . . and its dense black photographic lines will not fade, smudge, or wear off.

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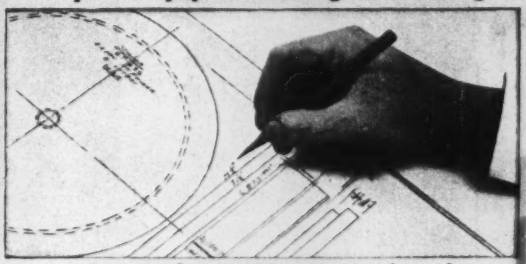
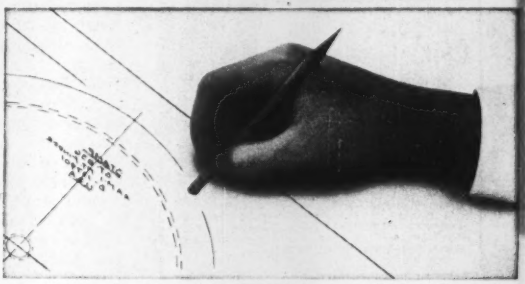
Its 30% extra translucency enables you to turn out sparkling blueprints or direct-process prints faster, which lowers production costs considerably in large-volume work. *And it makes practical and convenient* the general use of "reverse-reading" intermediates (which assure final prints of top quality).

Its extra durability simplifies the handling of larger-size sheets . . . offers increased resistance to wear and tear in print-making and drafting.



***So translucent* . . . you can easily read details on opposite side**

Reverse-reading intermediates, while better for print-making, used to be a problem in the drafting room. But no longer! Now the draftsman simply turns this highly translucent paper over . . . reads through the back—sees every detail sharp and clear. Additions, when necessary, are also made on this side.



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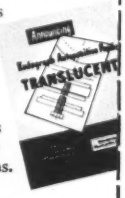

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MUNICIPAL

RESIDENTIAL SECTION of San Francisco in foreground of picture was built up before the war. Park Presidio Drive, the main cross street, center foreground, leads south to the newer sections—Stonestown and Parkmerced (not shown). Tall buildings, upper center, are downtown San Francisco business section with Bay Bridge leading to the hills of Oakland, Berkeley, Alameda and other East Bay towns in the far distance. (Redwood Empire Assn. photo)

San Francisco pushes redevelopment

San Francisco, bounded on three sides by water, is running out of room. Every available area of any size has been developed, just about to its limits.

So, logically, in 1949 the cramped city started exploring the possibilities of redevelopment, setting up the Redevelopment Agency of the City and County of San Francisco and giving it a $195,000 planning advance.

As a result, the agency is expected to start acquiring property early in 1952 in two blighted areas—the Western Addition, a slum section, and Diamond Heights, a hilly subdivision in the center of the city whose development was arrested by improper street lay-out. This land will be prepared for rebuilding by the agency, then sold to private interests. Funds will be obtained from the city and through the Federal Housing Act of 1949.

Two public housing projects of 500 dwelling units are planned by the city's Housing Authority to make available homes for citizens displaced by the Western Addition redevelopment.

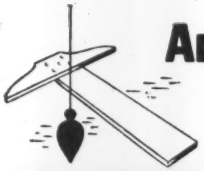
• **More housing**—The redevelopment agency is also starting to plan the reclaiming of two additional areas. In the McClaren Park area is one which —like Diamond Heights—was stunted in its growth by poor street lay-out. The other, somewhere south of Market, would be cleared of its slum dwellings and redeveloped for commercial and industrial use.

Two of the few open areas that had remained in the city were filled up recently by the $8,000,000 Stonestown and the $30,000,000 Parkmerced apartment house projects. A $15,000,000 shopping center is for Stonestown.

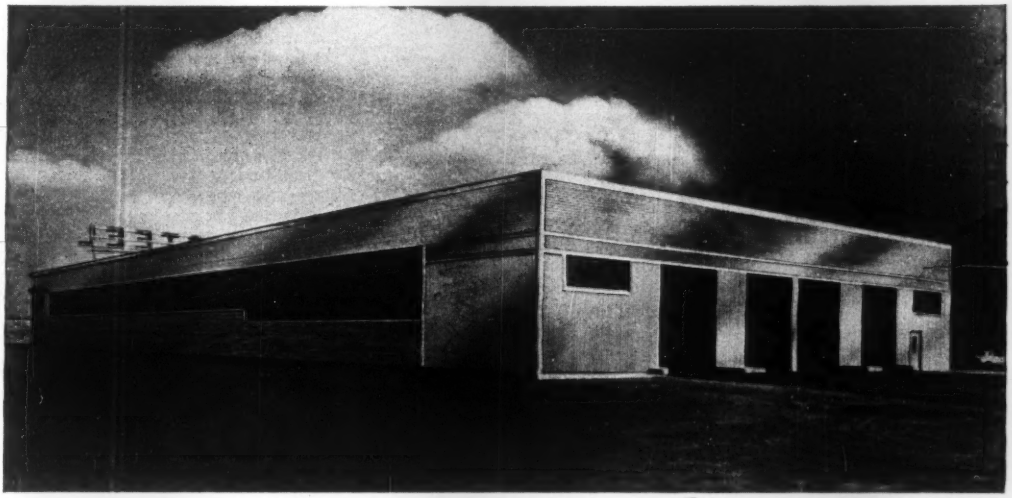
Two public housing projects are under contract to the city's housing authority, and a third is expected to get under way within a few months. Ping Yuen, a 234-unit, $1,900,000 project in Chinatown, is scheduled to open in November, and the $2,140,000 North Beach Place, a 229-unit structure, will be finished in April of next year. The $1,950,000 Bernal Homes project, soon to be started, will have 208 apartments.

• **Traffic congestion**—Another major concern of the crowded city is its traffic congestion. The San Francisco Municipal Railway has nearly completed a $20,000,000 rehabilitation program that will remove most streetcars and substitute motor and trolley coaches.

(*Continued on page 54*)



Architect-Engineer's choice for Beauty, Long Life, Low Maintenance



New warehouse—Ward Steel Co., North Cambridge, Mass.

When the Ward Steel Company of North Cambridge, Mass., undertook to build the most modern steel warehouse in New England, they called on Waghorne-Brown as designers and engineers. Waghorne-Brown specified rustproof, corrosion-resistant Reynolds *Lifetime* Aluminum Industrial Corrugated for siding. Their reasons were: appearance, long life, low initial cost and low maintenance (no painting)... plus great strength combined with light weight that saves money on framing (see specifications).

Aluminum's radiant heat reflectivity was another deciding factor. On walls or roof, it reduces inside summer temperatures and cuts winter fuel bills. An interesting detail in this building is the contrasting horizontal and vertical application, with aluminum corners and edging. For technical assistance and application details, call any Reynolds Office. Literature on request.

• **Offices in principal cities... check your classified phone book for our Building Products listing, or write Reynolds Metals Company, Building Products Division, 2005 South Ninth St., Louisville 1, Ky.**

Aluminum is required for planes and other military needs. Reynolds *Lifetime* Aluminum Industrial Corrugated is still produced, but the total supply is necessarily reduced. DO-rated orders receive priority handling.

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Corrugations 7/8" deep, 2-2/3" crown to crown
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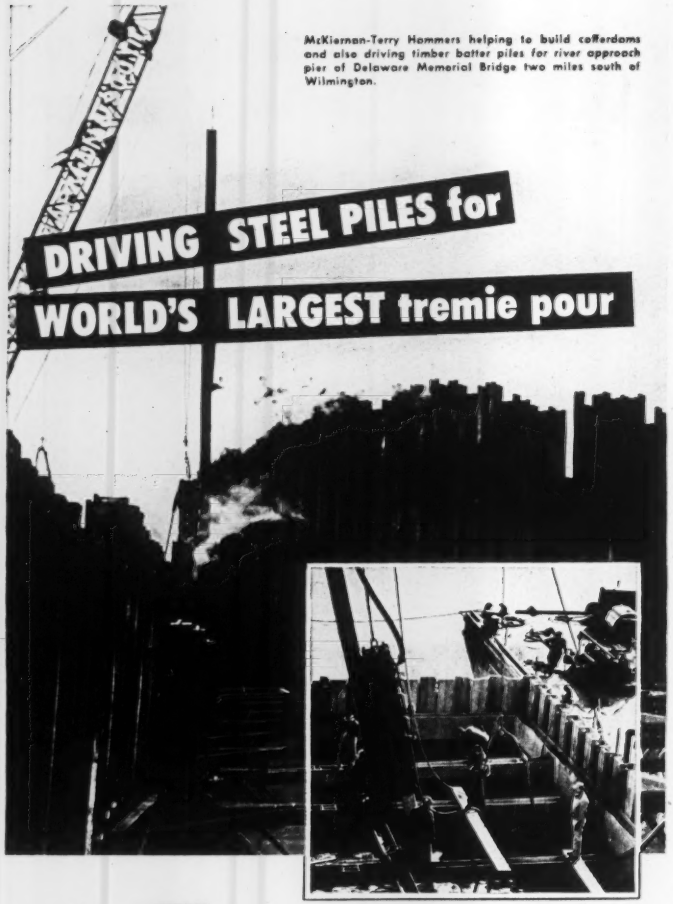
REYNOLDS ALUMINUM

REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

McKiernan-Terry Hammers helping to build cofferdams and also driving timber batter piles for river approach pier of Delaware Memorial Bridge two miles south of Wilmington.



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Setting the foundations for the anchorages of the Delaware Memorial Bridge was a feat requiring particular resourcefulness of the contractor, Merritt-Chapman & Scott Corporation, because of the magnitude of the job. The work involved the most extensive underwater operation of its kind, and the largest caisson in surface area ever built. • Eight McKiernan-Terry Double-Acting Pile Hammers—five 10-B-3's and three 9-B-3's—aided this project by driving steel piles 100 feet long to depths of from 77 to 84 feet through extremely compacted material. McKiernan-Terry 10-B-3 Pile Hammers were also used to drive the timber piles under water for the approach piers. • Blow by blow, on job after job, McKiernan-Terry equipment keeps proving its pile-driving speed, economy, and dependability. Investigate the wide-range McKiernan Terry line of 11 double-acting hammers, 5 single-acting hammers, and 2 double-acting extractors. Write for bulletin.

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Municipal . . .

The state has just started building a 6.3-mi. freeway which will connect the Bayshore Freeway to the Civic Center and the Oakland-San Francisco Bay Bridge. The first 1.3-mi. section, costing $3,000,000, is almost finished, and a second 1.4-mi. length has been advertised for bids.

• **Broadway tunnel**—Construction has reached the one-quarter mark on the $4,250,000 Broadway tunnel, a twin-bore, two-lane-each-way structure being built by the city to speed traffic from the downtown area to the Golden Gate Bridge. The 1616-ft tunnel is expected to go into service by early summer of next year.

In other utility construction, the city is starting on the $30,000,000 Cherry Creek Dam and 80,000-kw power house. Nearing completion is a $12,000,000 aqueduct across the San Joaquin Valley from the municipal Hetch Hetchy reservoir in Yosemite National Park. This will bring the capacity of the city's supply up to 140 mgd.

• **Sewage treatment**—In a $16,000,000 expansion of its sewage treatment facilities, the city will soon put into service its new 65-mgd North Point sewage treatment plant. A 30-mgd plant in the southeast section of the city will be finished by the end of the year. Sludge from both plants will be treated at the Islais Creek sludge plant, which is about 70 percent completed.

• **Second crossing delayed**—San Francisco's major pending construction project is conspicuous by the absence of any construction—or even planning—activity.

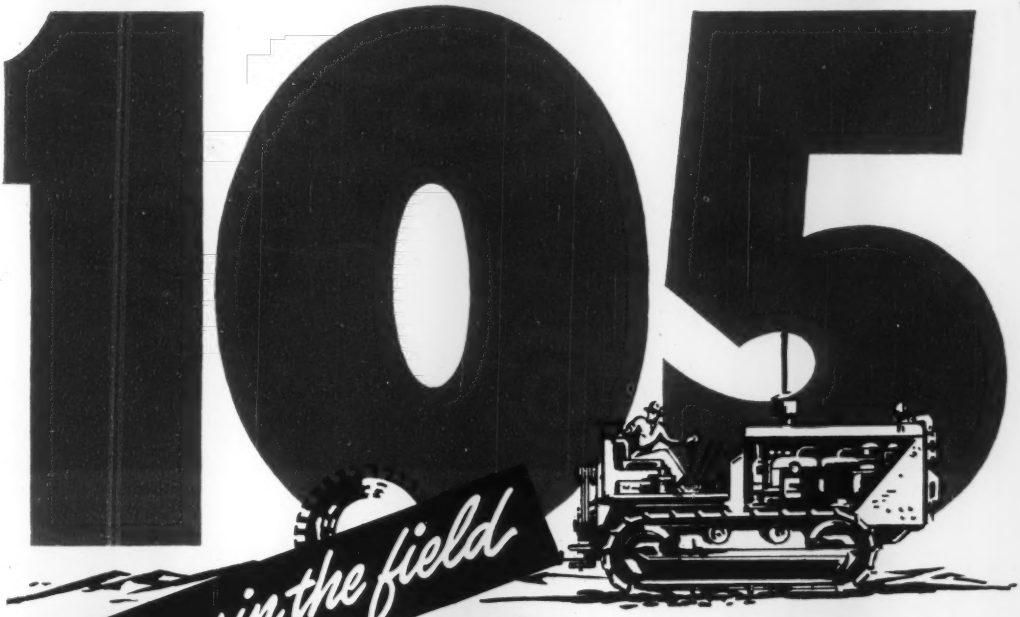
The much needed second crossing for the San Francisco Bay is apparently stalemated by the disagreement between Oakland and San Francisco on where to put it. San Francisco prefers a southern site, while Oakland votes for a span parallel to the present bridge—as does the State Department of Public Works.

Incinerators compulsory—Hereafter all new homes built in Garfield Heights, Ohio, Cleveland suburb, must be equipped with individual gas or electric incinerators.

Bi-city disposal plant—The construction division of the Welsbach Corp. has been given a contract for the construction of a sewage disposal plan to serve the cities of St. Joseph and Benton Harbor, Mich. Located on Terminal Island in the St. Joseph River between the twin cities, the plant will cost $1,750,000 and be completed late next year.

STOODY

105



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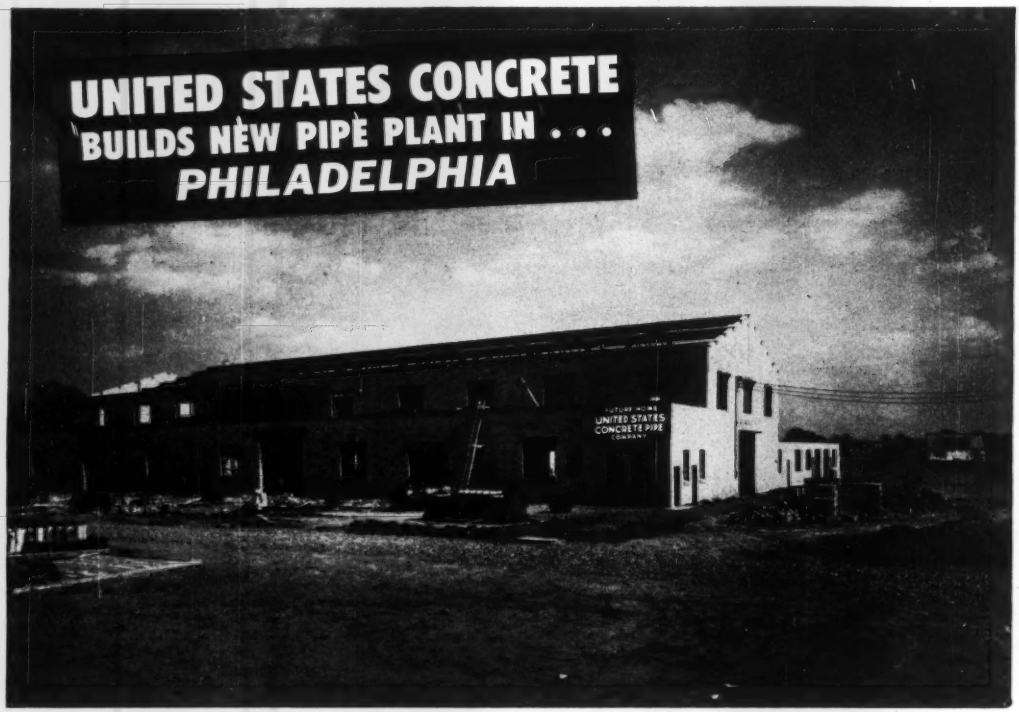

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MEN AND JOBS

GROUND BREAKING—W. P. Wright, of the local housing authority, turns the first shovel of dirt on a 400-unit housing project in Sacramento, Calif. Left to right, are J. G. Melville of San Francisco, field director of the Public Housing Administration; Bartley W. Cavanaugh, Sacramento city manager, Wright, and Sacramento Mayor Bert E. Geisreiter. The contractors on the $2,881,500 job are Williams & Burrows of Burlingame, Calif., and Carl N. Swenson, Inc., San Jose.

New appointments

Highway departments

A. L. McMillion has been appointed Dist. 9 engineer, West Virginia highways, Lewisburg.

George Darlington, acting Dist. 3 engineer, West Virginia highways, Parkersburg.

Robt. M. Vickery, div. engineer, Maine highways, Waterville.

H. L. Greenleaf, div. engineer Maine highways, Portland.

Government Agencies

Maj. Gen. W. M. Hoge, civil engineer recently placed in command of the U. S. Ninth Corps, has been recommended for the rank of lieutenant general.

Claude L. Draper, 75, has been renominated for a new 5-year term on the Federal Power Commission.

Lloyd K. Clark has been appointed sanitary engineering consultant to the Department of Health, Alaska.

Prof. Lowell O. Stewart, head of civil engineering at Iowa State College, has been appointed to the Iowa State Board of Engineering Examiners. He fills the position left vacant by the dealth last November of John S. Dodds.

State, city and county

Albert P. Backhaus has been appointed technical director of the N. Y. State Building Code Commission.

Ross Jermano appointed city engineer, Ogdensburg, N. Y.

Geo. R. Colton, supt. of public works for Mercer County, N. J.

A. J. De Febbo, senior asst. sanitary engineer, Pa. Dept. of Health.

Edmund B. Evans appointed supt. Dayton, Ohio, water treatment plant.

K. L. Chryster appointed city engineer, Great Falls, Mont.

Raymond W. Bellamy to head the Washington suburban sanitary commission for 6 years, and **J. N. Ager** a commissioner for the same term.

Corps of Engineers

Lt. Col. R. J. B. Page assigned as Dist. engineer, Garrison Dist.

Leonard H. Dicke recalled as a major to be at Fort Huachuca, Ariz.

Consulting Engineers

Eric Larson becomes a partner in the Gas Construction and Service Co., Inc., N. Y. City.

Harry W. Rish, of Louisville, Ky., has joined the staff of William Wallace II, consulting engineers, at Durham, N. C.

Industrial and Commercial

Frank Senzik has been named assistant superintendent of construction

(*Continued on page 58*)

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Men and Jobs . . .

for the Youngstown, Ohio, district of Youngstown Sheet and Tube Co., having previously been a field engineer in the company's construction department.

John H. Hansen has been named asst. chief structural engineer of Libby-Owens-Ford Glass Co., Toledo, Ohio.

Retirements

James P. Pope, 67, for 12 years a director of the Tennessee Valley Authority is retiring.

Honors

C. P. Edwards of Ottawa, Ont., and **C. M. Anson** of Sydney, N. S., have received the Julian C. Smith Medal of the Engineering Institute. Honorary membership in the Chicago Engineers Club has been bestowed on **Leroy F. Harza** (ENR April 26, page 12).

C. R. Escribano, an employee of the Pittsburgh District, Corps of Engineers, U. S. Army, is shown receiving a Suggestion Award from Col. Conrad P. Hardy, District Engineer. M. V. Harrington, Deputy Head of the Operation Division, stands at the right. The suggestion covers the use of specially designed crane hooks for handling heavy timber quoin and miter seals.

W. G. Pruett, graduate of Albama Polytechnic Institute, 1927, is new director of the Alabama State Highway Department. He is the second career man to be named director. Mr. Pruett has been with the highway department since his graduation and held a number of important positions, including office engineer.

New Mexico Dept. speeds road maintenance with C TOURNADOZER

Veteran operator W. C. Johnson is enthusiastic over the versatile performance of the Tournadozer. "It's a good, all-around machine," he reports.

In Southwestern New Mexico, Division One of the State Highway Department is handling a number of scattered road maintenance tasks with a high-speed, rubber-tired C Tournadozer. In the past year, the versatile "C" has satisfactorily completed a wide variety of jobs like these:

Clears rock slides, builds detours

Last fall, flash floods piled up debris on U.S. Highway 260 near Cliff. The mobile LeTourneau rubber-tired Dozer was dispatched from Division Headquarters at Deming, drove 84 miles over mainline roads . . . went to work the moment it arrived . . . and soon re-opened the route to traffic. From Cliff, the high-speed Tournadozer rolled east along the Black Range Highway (State 180) to clean up a number of heavy rock slides which couldn't be handled with a motor grader. Next, the versatile "C" drove to a site near the upper Rio Grande River, where it opened a detour to bypass a burned-out road bridge.

Feeds portable rock crushing plant

Recently, the Tournadozer has been teamed with a portable rock crushing plant on highway resurfacing work between Las Cruces and Albuquerque. Here, the State is using ¼" rock chips to seal-coat 228 miles of U.S. 85. Material is being borrowed from pits spotted along the right-of-way. Tournadozer has been assigned the feeding work . . . and has helped maintain a high production rate by digging up and delivering all the bed rock and gravel the crusher can handle. Over 100 miles of road have been resurfaced within the past several months . . . and work is progressing continuously at a fast rate.

Tournadozer's ability to go anywhere, any time, has helped finish all these New Mexico highway maintenance tasks on or ahead of schedule. Big 21.00x25 low-pressure tires enable the powerful "C" to work in loose sand or soft muck . . . then drive from job-to-job over paved highways or cross-country. No waiting for trailer . . . no loading or unloading delays. Operator just hops on this big Dozer and GOES. Heavy-duty, 4-wheel air brakes let him highball down steep mountain grades and around narrow curves with complete confidence and safety.

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Ask your local LeTourneau Distributor for a complete picture of the savings possible in *your* jobs with a "C" or smaller D Tournadozer. He'll show you how to make money the year-round with these high-speed dozers and their auxiliary tools—Angle-dozer, V-type Snow Plow, Side-Boom Crane, Carry-all Scraper, Logging Winch, Root Rake, etc. Call him . . . or write TODAY!

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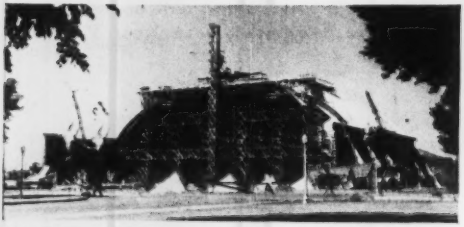
PREVIEWS
from the
CROSBY CLIPPER

These are excerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon on right hand page, to start with the current issue.

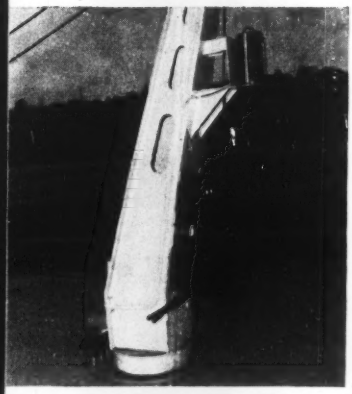
"C'est magnifique!" So says the expression of M. Darmaillacq, shown by his American Diesel Locomotive Crane. At right, the crane repairs sea wall for its owners, the Port of Bordeaux, in France.



Shell on wheels. New Coliseum building at Minnesota State Fair was built on this tremendous falsework form, rolled forward on steel rails. Power for the tower was supplied—as in most big jobs everywhere—by a tireless American Hoist.

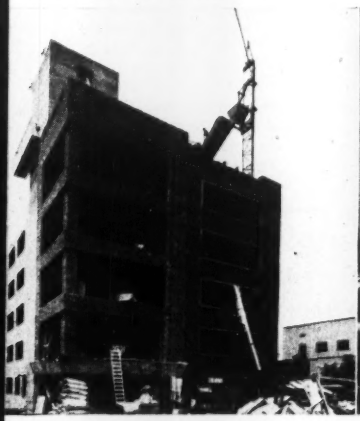
Highway in the sky. Building its own support in mid-air, this American Stiffleg Derrick moves forward on a traveler, setting steel for the State of Kentucky's Cumberland River highway bridge at Burnside, Ky. This is one of the "specials" made possible by American Hoist's world-wide experience in derrick design. Notice the wide side beams, holding guy lines from top of mast. For more facts on this interesting job, read the current *Crosby Clipper*.

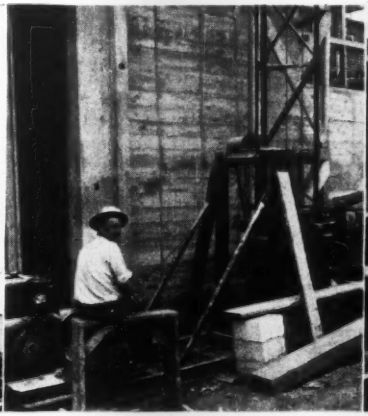
The AMERICAN HOIST line includes: Hoists • Derricks • Locomotive Cranes • Crawler Cranes • Revolver Cranes • Portable Material Elevators



Cap'n Howder's Handiwinch. For handling both load and boom lines on its new, super-smart river towboat, Hillman Barge & Construction Co. chose a pair of American Handiwinches. With them, one man handles loads up to 10,000 lbs.

Hungry Horse consumes Crosby Clips. High above massive Hungry Horse Dam in Montana, death-defying riggers are using Crosby Clips by the thousands. Photo at right shows why. Miles of overhead wire rope need the safest fastening money can buy . . . and Crosby Clips, with famous red U-bolts, are a rigger's only choice for *tight holds*.





"New look" in lifting! Where clumsy, costly wooden towers would have once been seen, you now find American Portable Material Elevators. Here are three at work. Left, on Mary Pickford Hospital, Los Angeles. Center, on coeds' dormitory at Cheney, Washington. Right, on Fulton High School, Knoxville, Tenn. *Clipper* stories tell how these fast moving, self-erecting elevators make "unbelievable" time records. They can be equipped with 6'x6' lift platform, self-dumping concrete bucket, and independent swinging boom at top of tower.

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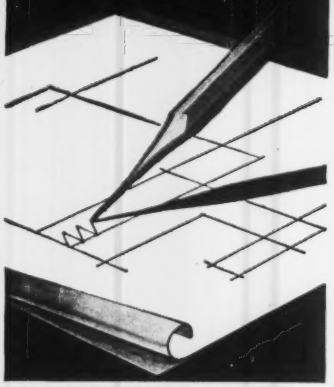

• Imperial Pencil Tracing Cloth has the same superbly uniform cloth foundation and transparency as the world famous Imperial Tracing Cloth. But it is distinguished by its special dull drawing surface, on which hard pencils can be used, giving clean, sharp, opaque, non-smudging lines.

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EDUCATION, RESEARCH

To study rainmaking in Northeastern Colorado

The engineering section of Colorado A. & M. College's extension service is studying the effects of artificial rainmaking on precipitation in northeastern Colorado.

Rainfall data in the Cache la Poudre, Big Thompson and St. Vrain River areas over the last several years will be compared with the precipitation this spring. College officials said the investigation was requested by the Northern Natural Resources Co. of Fort Collins, Colo., sponsor of attempts to increase rainfall in the area by artificial means.

T. H. Evans, Colorado A. & M. dean of engineering and chairman of the extension service engineering section, emphasized that the college's position would be one of a "neutral observer" on the value of rainmaking. He said he doubted that data for the months of March, April and May only would give conclusive results.

"It is felt that a real, scientific evaluation is necessary for a number of years in order to have a reliable answer, because the natural variations in precipitation are tremendous," Evans observed. He added that, "Should the claims of the rainmakers prove correct, this new science will have a terrific impact on the economy and life of the West."

Water quality standards

A project to consolidate all available information on water-quality standards as an aid to water pollution control agencies is under way at the California Institute of Technology under Jack E. McKee, associate professor of sanitary engineering.

The work is being done under contract with the California State Water Pollution Control Board. Its executive officer, Vinton W. Bacon, announced the survey had a two-fold purpose: to make the data on water-quality requirements for all beneficial water uses readily available to the state and nine regional boards, and to indicate where more research is needed.

Industry, trade associations, conservation groups, sportsmen's associations, agriculture, public health interests, and all other groups in the state concerned with water-quality requirements are being asked to cooperate in the investigations through an advisory board. Work of original investigators will be covered in addition to interpretation of water-quality standards in legislation, regulations, and court rulings.

Unit studies sanitary engineer supply

With the demand for sanitary engineers far outrunning the supply, a group of 24 leading educators and employers met recently in Washington to take a second look at the situation. In a two-day session with 10 staff members of the Public Health Service, the conference outlined several problems for study and recommended action on a cohesive professional committee representing sanitary engineers.

The meeting was a follow-up of a previous conference held early last year. At the recent session, two reports laid the groundwork for a discussion of manpower prospects in the profession. Since 1889, one report showed, U. S. colleges had produced only 3,100 sanitary engineering graduates in all.

A second paper, based on a survey of nearly 1,800 sanitary engineering graduates of 25 schools during the 40-year period, 1910-49, indicated that only half of these men remained in the profession in 1950.

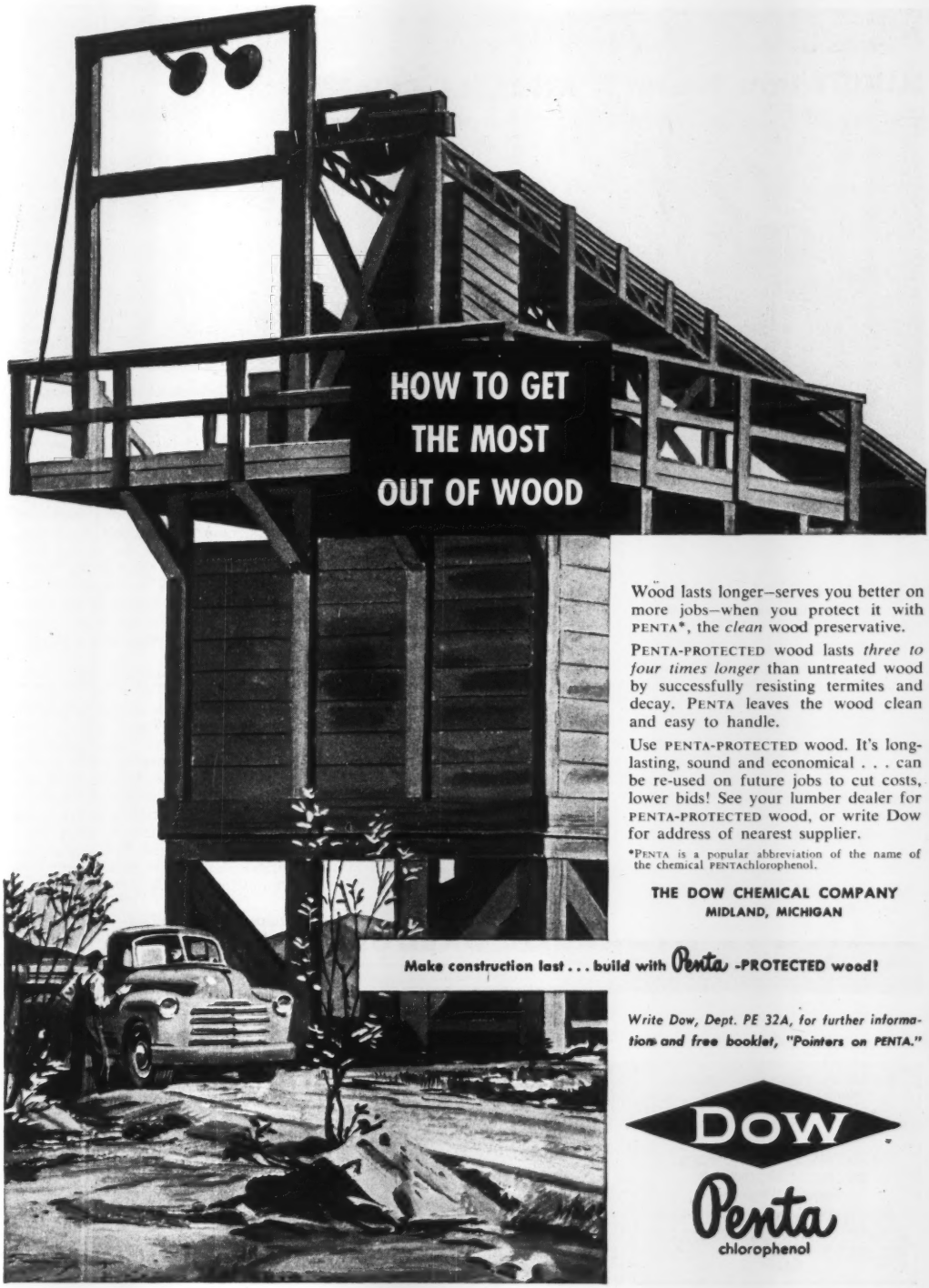
• **Vacancies**—Repeating an action of a year ago, the conference again endorsed a study of the need for sanitary engineers. As one indication of the immediate demand, state and local health departments have 107 professional engineer vacancies awaiting applicants.

Altogether, the current programs of state and local agencies alone require 482 additional sanitary engineers. To these needs must be added requirements for industry, for the federal government and for service abroad.

Excluding any reduction by Selective Service, there will be only 582 sanitary engineering graduates in the five years, 1951-54. Based on the survey, 287 of these men can be expected to stay in the field.

One disadvantage of the sanitary engineer today is that he has no professional home, the group pointed out. A number of professional societies represent various activities of sanitary engineering. The conference urged the Sanitary Engineering Division of the ASCE to act on its 1949 proposal for a joint committee, representing selected groups and societies, to advance the profession by helping work out its problems.

(Continued on page 64)



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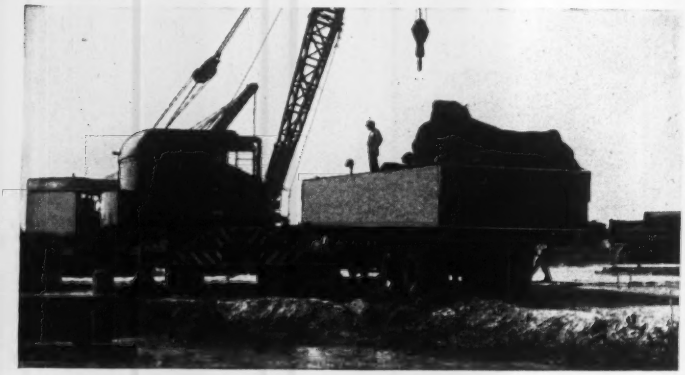

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RETIRING—Frederick Morris Feiker, at the end of this academic year will retire as dean of the George Washington University school of engineering, which position he has held since 1939. He is a graduate of Worcester Polytechnical Institute, 1904. He is former chairman of the editorial board of the magazines "Factory" and "System", and at one time was a vice-president of the McGraw-Hill Publishing Co., and editor of the "Electrical World." He was appointed assistant Secretary of Commerce in 1921, and from 1931 to 1933 was director of the U. S. Bureau of Foreign and Domestic Commerce.

Larger hydraulic lab—Colorado A & M College, Fort Collins, Colo., is doubling the size and capacity of its hydraulic laboratory, where fundamental research has been carried out in the design of some of the world's most famous dams. When completed the laboratory will be 80 x 200 ft. The college was a pioneer in irrigation research under Elwood Mead, later U. S. Commissioner of Reclamation.

Atmospheric sampling—A committee has been formed by the American Society for Testing Materials to formulate methods of atmospheric sampling and analysis, and the stimulation of research. Some of the problems are: Sampling procedures, methods of analysis of aerosols and gases, the use of the Ringleman chart, smoke density determination, and clarification of terminology of measurement units.

Turnpike sound film—"Pennsylvania's Great Highway" is the title of a new 16-mm. Kodachrome motion picture describing the construction of the extensions of the Pennsylvania Turnpike. Copies of the film for showing may be obtained from the Portland Cement Association, 33 W. Grand Ave., Chicago 10, Ill.

Gradall—MULTI-PURPOSE MACHINE makes *Big Savings* for large utility company

Read how a new mechanization program is saving thousands of dollars for one of the country's largest utility companies.

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- ". . . the same Gradall also makes light work of pile and shore pulling."

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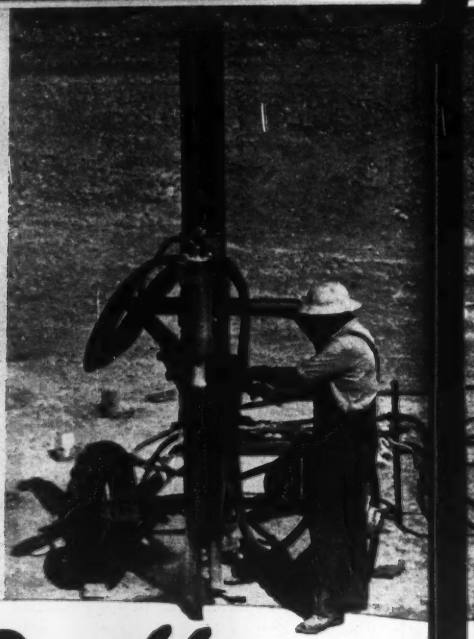
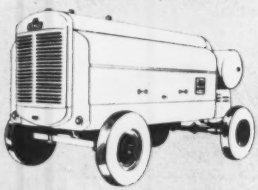
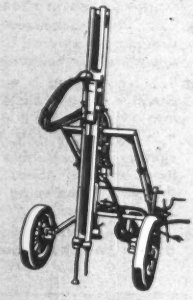


Your Drilling



Why Le Roi Airmasters produce more air for less money: 10 to 30% lower piston speed for less wear, longer life, lower fuel consumption . . . a heavy-duty engine designed especially for compressor service, not just an automotive unit slowed down — that's why Le Roi Airmasters stay on the job longer, produce more air for less. Sizes from 60 to 600 *cfm*.

Why Le Roi-CLEVELAND Wagon Drills cut deep-hole costs: — 4-inch bore, powerful force of blow, strong rotation, and thorough hole-cleaning action. Higher drilling speed with big bits. You can drill at any angle — put your holes *where you want them* for better breakage, lower costs. For shallow holes the new lightweight DR34 unit is your best bet.



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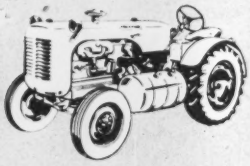
Why multi-purpose Tractair saves you money: Tractair is a tractor-105 compressor unit that can be equipped with a wide variety of attachments. This single unit can do the work of specialized expensive equipment — loading, lifting, backfilling, snow-plowing, etc. — as well as breaking, drilling, digging, and tamping. Keeps your initial investment down, your job costs low.



Why Le Roi-CLEVELAND Sinkers drill more feet per shift: Strong rotation, and powerful blow from snappy valve action. Drill more inches per minute. Easy to hold, kickback is reduced. Operators are less tired, drill more feet per shift. Sizes 17 to 82 lbs., including the popular H10 and H111.

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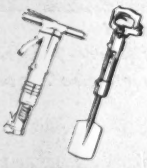
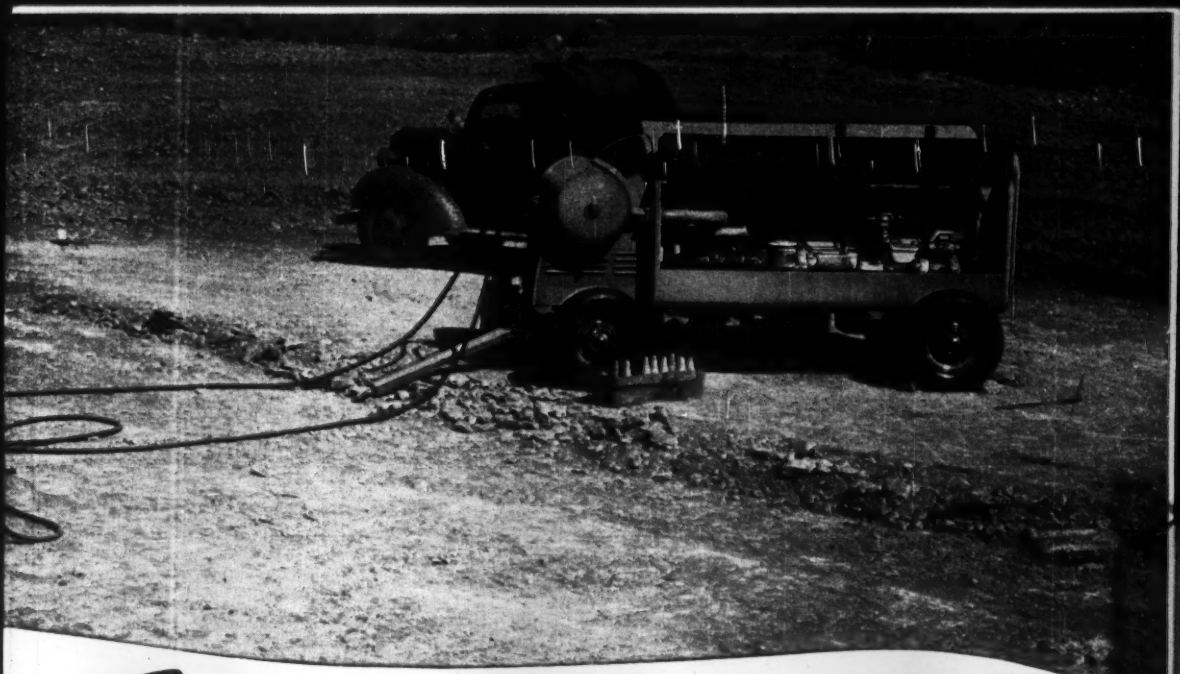
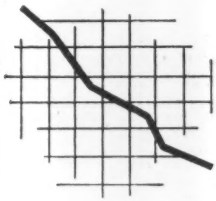




Expense Nose-Dives



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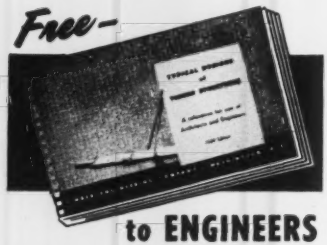

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MEETINGS

H. B. Gotaas, head of the civil engineering department at the University of California at Berkeley, is the new president of the California Sewage Works Association. Arthur G. Pickett, Los Angeles, is first vice-president; Lawrence H. Cook, Palo Alto, second vice-president; and Samuel Weed, Oakland, secretary-treasurer.

Austin E. Page, of W..t Hartford, Conn., has been elected president of the New England Road Builders Association. Samuel J. Tomasello, of Boston, vice-president, and Harold R. Brownson, of Brighton, reelected treasurer.

J. J. Stein, Los Angeles, has been elected a vice-president of the National Clay Pipe Association. Others from the Los Angeles area named to executive posts are E. M. Davids, vice-president of Gladding, McBean & Co., and John D. Fredericks, president of Pacific Clay Products. Both were elected directors.

V. H. King has been appointed to the newly created position of manager of General Petroleum Corporation's exploration department.

At a recent meeting in Albany of the New York State section of the American Water Works Association, the following officers were elected: Chairman, Robert W. Austin; Vice-chairman, John G. Copley. Trustees are J. R. Losee, S. P. Carman, Everett Rowley and T. B. Tyldesley.

Ralph Simonette, Niagara Falls, was elected president of the Niagara Chapter of the New York State Society of Professional Engineers. Other officers: Deane O. Hubbard, vice-president; Ray C. Newman, secretary; Elton L. Burmaster, treasurer, and William F. Anderson, Harold M. Huse and William M. Whitmore, directors.

New officers of the American Wood Preservers Association are: W. R. Yeager, Western Electric Co., New York City, president; vice-presidents R. H. Bescher, Kippers Co., and P. D. Brentlinger, Pennsylvania Railroad. W. A. Penrose, assistant secretary of the AWPA for the last several years, was elected treasurer, succeeding H. L. Dawson, retired. A. S. Daniels, Texas and New Orleans Railroad, and N. E. Kittell, Joslyn Mfg. & Supply Co., were elected to the executive committee.

George W. Combs, Detroit, Mich., has been appointed secretary-manager of the Michigan Chapter, Associated General Contractors of America to succeed W. Weldon Allen. Mr. Combs was graduated from Northwestern University, Institute of Trade Association Management and the University of Michigan. He has served as administration assistant of the Detroit Chapter of the Association General Contractors and is a former secretary of the Detroit Trade Association and was assistant manager of the Detroit Building Employers Labor Relations Council.

A University of Florida engineering professor, Walter H. Beisler, is the president of the Florida Engineering Society. He succeeds Emil A. Nordstrom of St. Petersburg. State Board of Health Sanitary Engineer David B. Lee has moved up to the first vice-presidency and Earle M. Radear of Miami was elected second vice-president. Raymond Chase retired after 10 years as treasurer and was succeeded by Russell De Grove of Jacksonville. John B. Miller of Jacksonville continues as secretary. Directors are John F. Reynolds and Wylie W. Gillespie of Jacksonville, Leslie Taylor and Harvey F. Pierce of Miami, A. P. Michaels and A. B. Herndon of Orlando, John A. Long of Tallahassee and R. A. Menendez of Tampa.

CALENDAR

President's Highway Safety Conference, Washington, D. C., week of June 10.

American Society of Civil Engineers, summer convention, Brown Hotel, Louisville, Ky., June 13-15.

National Society of Professional Engineers, annual meeting, Nicollet Hotel, Minneapolis, Minn., June 13-16.

American Congress on Surveying and Mapping, annual meeting, Hotel Shoreham, Washington, D. C., June 18-20.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

Ohio Sewage and Industrial Wastes Treatment Conference, Neil House, Columbus, Ohio, June 20-22.

Western Association of State Highway Officials, Fairmont Hotel, San Francisco, Calif., June 25-28.

The American Society for Engineering Education, Michigan State College, East Lansing, Mich., June 25-29.

National Constructors Association, Labor and Executive committees, Edgewater Beach Hotel, Chicago, Ill., July 11-12.

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23 (tentative date).

National Conference on Prestressed Concrete, Masschusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

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there's a JAEGER machine to cut its cost

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Jaeger Paver-Type Aggregate Spreader will lay up to 10" of coarse stone or 12" of finer or graded materials in 10'-11' widths, or slightly less thicknesses in greater widths to 12'6"—as fast as trucks can deliver.

2: Paving secondary roads

Spreader accurately lays both base and surface aggregates, plant-mixed stabilized soil and any free-flowing hot or cold bituminous mixes.

3: Parking lots, drives

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Traction on subgrade, not on loose material: Choice of 4-wheel drive or crawlers (interchangeable) which operate on subgrade or compacted course. Nothing to displace the newly laid material and leave high and low spots.

Straightedge runners insure accuracy: Ride evenly on subgrade and carry strike-off independent of vertical motion of rest of machine.

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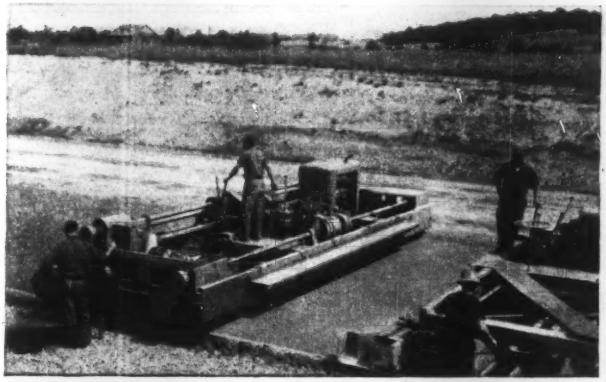
Two models, for any size trucks: 10'-12½' model with 8' hopper for smaller trucks on 16'-18' widths of work. 11'-12½' model with 9' hopper for any trucks up to 24-ton semi-trailers. Telescopic outside adjustments make width changes easy. Ask for new Catalog SPS-1.



Note how 12" oscillating screed, on spreader, accurately meters material to the finisher.

4: Concrete paving with 3-screed "team"

Jaeger Screw Spreader, equipped with oscillating screed, accurately meters exact amount of material needed ahead of the Finisher. Saves carry-back, maintains uniform compression under finishing screeds. One Jaeger double screed Finisher completes job. Only Jaeger provides diagonal rear screed for finishing pitched slab or super-elevated curves.

3½" drill, powered by 250 ft. compressor, drills 35% faster than with 210 ft. of air.

5: Stopping up air tools to 30%-40% more work

Smart contractors no longer waste high-cost labor on loafing air tools. With the 15% to 25% more air supplied by Jaeger Air-Plus Compressors, users keep their tools working at full efficiency, actually do as much as 4 days work in 3, *and pay less per cubic foot of air than with any other compressors built.* Jaeger's "new standard" sizes are 75, 125, 185, 250, 365 and 600 cfm—to match today's tools.

All users tell you: "No pump knows how to handle water like a Jaeger."

6: Low cost pumping

Jaeger Pumps are built oversize to produce rated volume at slower speeds, hold more priming water, are subject to less abrasive wear. Prime without vapor lock on toughest pulls, maintain efficiency more thousands of hours. Sizes to 10".

7: A faster pace for concrete crews

Bigger daily yardage with Jaeger fast "Skip Shaker" loaders and fast discharging "Dual Mix" drums. Sizes 3½S to 16S.

Now is the time to make good use of your Jaeger distributor's service

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SAUERMAN POWER DRAG SCRAPER

Movement of almost any kind of material can be accomplished economically by a Sauerman Scraper. It is used to excavate sand, gravel, clay, etc., and deliver to hopper or pile. It is used to clean out sludge basins and handle all kinds of viscous materials. It is used for stockpiling coal, ore and other bulk materials. Wherever used it saves time, money and manpower.

One easily trained man completely controls the operation and takes care of the small amount of maintenance. Only a few parts come in contact with the material being worked, so wear is slight. Installation cost is low and power consumption, Diesel, gasoline or electricity, is small on the basis of tonnage handled.

Write for the Sauerman Catalogs A and E and read the facts about handling materials with power scrapers.

STORY BEHIND THE PICTURE

A 50-year accumulation of waste coal silt at a Pennsylvania mine is being reclaimed by a 3 cu. yd. Sauerman Power Scraper to a processing plant where the waste is converted into usable fuel. The above photo shows the scraper making its first cut into the pile, which is 1500' long, 700' wide and 50' high.

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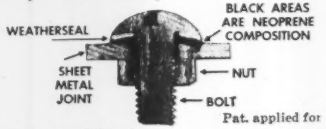

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Weatherseal Washers are one-piece, metal bonded to neoprene composition. The two-way squeeze completely seals the washer's outer edge as well as the fastener shank, making it a valuable, cost-saving item in these and other applications:

- **Sheet metal roofing and siding**
- **Auto body and chassis assembly**
- **Sheet metal ductwork**
- **Porcelain-to-metal assemblies**

Weatherseal increases fastener grip, insulates galvanic currents in unlike metals, aids against rattle.

TOPSEAL, the factory-assembled fastener and washer, saves time, reduces inventory. You specify or supply the fasteners. Write for a Weatherseal Washer sample, stating your sealing or fastening problem. Large stocks for quick shipment.

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West Newton, Pa.

OBITUARY

George Carpenter Rice, 84, a builder in Buffalo, N. Y., for 65 years, died there May 17. He continued actively at the head of his firm until about three months ago.

Carlton S. Wicker, 62, a civil engineer, died May 17 in Buffalo, N. Y. He was sales manager of the Buffalo Slag Co. for many years. He was a graduate of Dartmouth College.

James H. Young, 67, for the last 18 years structural engineer with the Groisser & Schlager Iron Works, Somerville, Mass., died at Arlington, Mass., May 20.

Charles Edward Ferris, 86, emeritus dean of the University of Tennessee's Engineering College, died May 19 at Knoxville. He went to the University of Tennessee in 1892 as an engineering instructor, and became the first dean of engineering.

Sidney A. Cunliffe, 60, divisional engineer for the British Columbia Department of Public Works at New Westminster, died there recently. He had been employed by the department since 1931. He served at Revelstoke, Pouce Coupe, Smithers, and Prince George. Before joining the Public Works department, he had worked for the Vancouver city engineering department, in Burnaby, and on construction of the Pacific Great Eastern Railway. He served overseas in 1915-18. He also worked for Abernathy-Lougheed Logging Co. at Haney, B. C., and for the Department of National Defense at Merritt.

Sigurd Thage Petersen, 49, president of S. T. Petersen & Co., Inc., engineers and builders, died May 20 in Princeton, N. J. He was graduated from the Rensselaer Polytechnic Institute in 1929.

Osborn Monnett, 74, consulting engineer for 40 years for the Commercial Testing and Engineering Co., Chicago, died May 13 at Lakeside, Ohio. As chief city smoke commissioner for Chicago, he prepared a smoke ordinance which was used as a model for legislation in several large cities.

Albert J. Raisch, 91, founder of the Raisch Paving Co. of San Jose, Calif., died in San Francisco, May 23. The firm which bears his name played a major part in construction of the Hetch-Hetchy water supply system for San Francisco, and also constructed many miles of Santa Clara County roads and state highways.

CUT OUT FOR YOUR JOB

in the long-wearing pattern so popular today

One of 6 new International LF-190 six-wheelers with 6¼-yard mixer bodies recently added to the fleet of the Harris Concrete Company.

When you buy a suit for long wear, you pick something like sharkskin with hard-wearing quality, that won't pop at the elbows or balloon at the knees.

The truck you see here is a popular choice today for the same basic reason: it's got a special kind of toughness built in. It's *heavy-duty* engineered with the extra stamina that has kept Internationals first in heavy-duty truck sales for the last 19 straight years. And it's as custom-tailored for your job as a truck can be.

If we can't fit you, nobody can

International offers complete specialization in the most complete line of trucks in America. When you get into the heavy-duty six-wheeler class, you get this expert specialization at its very best.

Here's a sample of the right-on-the-job features these great new trucks give you:

New bogie assemblies integrated to chassis for maximum flexibility and increased efficiency on and off the highway.

New dual-drive hypoid-gear axles that give you greater load-carrying capacity along with greater traction for tough going in deep sand and mud.

New inter-axle differential on the forward tandem axle in place of the old type power divider.

New valve-in-head truck engines—the Super Blue Diamond and Super Red Diamond—*proved* for balanced power and economy.

Plus . . . the great new **COMFO-VISION CAB**, "roomiest on the road"!

See us for a truck that will wear better

This combination of specialized features and traditional stamina is a tough one to beat today, when investment in durability is more important than ever. See your International Truck Dealer or Branch.

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INTERNATIONAL TRUCKS

Every model heavy-duty engineered for the long haul

THE JOB MUST GO ON!

MARLOW pumps help Bechtel Corporation cross difficult swamplands

This natural gas pipeline is being constructed between the Texas Gulf Coast and Joliet, Illinois, across all kinds of terrain. At one of the worst spots — this swampy stretch at Newport, Arkansas — the contractor had to put weights on the pipe to sink it below the mud. And under conditions as tough as they come, the Marlow pump shown, a Model 641 Self-Priming Centrifugal, stays on the job and helps construction move ahead smoothly.

This job furnishes another example of Marlow stamina and dependability. **REMEMBER!** Marlow pumps have been helping contractors solve difficult pumping problems for over a quarter of a century. Let Marlow pumps help you cut costs and safeguard **your** profits.

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Jacksonville, Fla. Norfolk, Va.
Eddington, Pa.

John H. Dods, 70, for the last 10 years employed in the city engineer's office, Kansas City, Kan., died recently. Formerly he built refineries for the Sinclair Oil Co.

Martin G. Moore, 72, of Wilmington, Del., a retired engineer, died May 21 at Wilmington. He became affiliated with the U. S. District Engineers in 1904 and completed 41 years of service on Nov. 1, 1945. He served as engineer at the Chesapeake City, Md., office of the U. S. District Engineers at the time of his retirement.

Frank W. Reynolds, 83, for many years president of Lockwood-Greene & Co., Engineers, died on May 27 at Winchester, Mass. He had been identified with the design, construction and development of industrial plants.

Oscar A. Zimmerman, 69, a retired bridge engineer died in Kansas City, Mo., May 21. He had a part in the construction of four bridges over the Mississippi and eleven over the Missouri.

Maintenance by contract is favored in Ohio

Severe winter weather plus heavy traffic has damaged 1,735 miles of Ohio state highways so severely that it will take $8,000,000 of corrective maintenance just to put them in usable condition, according to Highway Director T. J. Kauer.

One-fourth of this work is being done by contract since state forces are inadequate to complete the entire program in time for summer travel. This is the first time the Ohio Highway Department has contracted maintenance work (ENR May 3, 1951, p. 17). It was necessary to secure special permission from the State Control Board to do so.

Speed in the essence of the maintenance-by-contract program, which is handled through the purchasing department rather than in the normal manner. Such procedure saves at least 30 days in getting work started. Lettings are held twice a week. Bids are opened 10 days after announcement of contracts to be let and, in some instances, repair work has started 48 hours after opening of bids.

The total $8,000,000 emergency program, covering 385 stretches of pavement in all 88 counties, includes 1,082 miles of resurfacing; 605 miles of surface treatment only; 44 miles of pavement widening and resurfacing; and 4 miles of miscellaneous work, chiefly pavement replacement.

16" and UP

If your requirements call for transmission or distribution mains of 16" diameter or larger, Lock Joint Pipe Company can provide high quality concrete pressure pipe in all standard diameters and some intermediate sizes. Starting at a minimum of 16", Lock Joint Concrete Pressure Pipe is produced in 32 different diameters, and its four distinct types of structural design cover every working condition common to American water works practice.

Not only does Lock Joint Concrete Pressure Pipe qualify fully under A.W.W.A. specifications, but it alone embodies, in a conventionally designed pipe priced to meet competition, all the nine time-tested characteristics listed at right:

- **PERMANENT HIGH CARRYING CAPACITY**
- **PROOF AGAINST TUBERCULATION, CORROSION AND ELECTROLYTIC DAMAGE**
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- **SPECIALS TO MEET INDIVIDUAL SPECIFICATIONS**
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Whether your proposed line is large or small it will pay you to use Lock Joint Concrete Pressure Pipe, the pipe of proven durability, economy and dependability.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

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PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

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PRESSURE PIPE

The lightweight G-150 WAGON DRILL, designed for use with CP 59-pound Sinker or 3-inch Drifter, drills to depth of 20 feet or more, vertically, horizontally, or at any angle. Write for copy of SP-3010 for full description.

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CP PORTABLE COMPRESSORS, notable for dependability, low maintenance; available in gasoline and Diesel driven models, 60 to 600 c.f.m. CP Gradual Speed Regulator minimizes engine wear, saves 15% to 35% in fuel.

CP-220 HICYCLE VIBRATOR, running at constant speed of 1,000 v.p.m., gives fast placement, aids compaction and reduces honeycombing. Can be used anywhere within a 400-foot radius without moving the gasoline-driven generator. Write for details.

Write for Catalog 600

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LABOR

Wage hikes called stability guarantee

Stability in the construction industry—achieved through long-term contracts—might be seriously affected if deferred increases were to be disapproved, the Wage Stabilization Board was told last week.

The WSB, newly reconstituted and buckling down to work on decisions on thousands of cases affecting labor's pay check (ENR May 31, p. 37), last week was in the midst of hearings on the question of approving "annual improvement" productivity increases in the automobile industry and deferred increases in other industries irrespective of any general wage ceiling.

Richard J. Gray, president of the American Federation of Labor's Building and Construction Trades Department, told board members that construction's stability would be "upset" if the increases were not approved.

• **Many affected**—There are now more than a half-million contracts in existence, covering 2,790,000 building trades workers in 19 unions, Gray said.

"Most contracts," he added, "are negotiated in November to take effect in May, thus giving contractors a few months in which to figure their costs before bidding on construction work. Increases usually are in installments, so that the contractor does not have to absorb the full brunt of the increase all at once. But it does make it possible for the contractor to figure what his costs will be in the future.

"On very big contracts—like dams—contracts cover as much as five years, the average is about two years."

Quite a number of these step-up increases, Gray said, have been blocked by the 10% ceiling imposed in January, although the increases were due to go into effect this May. "If these increases are voided," he added, "the unions would consider the contracts invalid and subject to renegotiation. The unions will want other concessions to make up for the loss of the wage increases."

• **Promise report**—Ending his testimony, Gray promised WSB a full report on deferred increases in construction, including the number of contracts, workers covered, the amount of wage increases and when they fall due.

Court orders workers back to Delaware Bridge

A court order last week ended a threatened delay to completion of the huge Delaware River Memorial Bridge

(*Continued on page 78*)

2
1
3
3-purpose part. Ingenious design is a feature of Mathews Hydrants—for example, use of a shield operating nut of high tensile iron. This serves three purposes.
1 It protects the soft bronze revolving nut from wrench wear.
2 It is cheaper to replace in case of damage by pipe wrenches or other improperly fitting tools.
3 It prevents dust, snow, rain or sleet from getting in around the revolving nut, always assuring free and quick operation.
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Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Mathews Modernized Hydrants offer these advantages

All working parts contained in quickly replaceable barrel • Stuffing box cast integral with nozzle section —positively leakproof • Head turns 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • A modern barrel makes an old Mathews good as new

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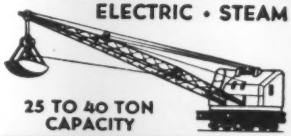

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IT GETS DOWN!

For EASIEST possible LOADING, the frame is lowered to ground WITHOUT BLOCKING.

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1. Carries heavier loads on larger tires.
2. Detaches quickly for fast, easy front loading.
3. Stoops to clear low overhead obstructions.
4. Raises its deck to clear high banked crossings.
5. Is detached, loaded and reattached in 5 minutes.

Yes, with this unique trailer you can detach the gooseneck, load up, reattach the gooseneck and drive off in a matter of ONLY 5 MINUTES.

Complete Literature available upon request—Any Rogers Dealer will demonstrate its features right on your desk, with an OPERATING SCALE MODEL.

EXPERIENCE *builds 'em* ROGERS PERFORMANCE *sells 'em*

ROGERS BROS. CORP.

ALBION, PENNA.

Rogers Tilt-Top trailers embody a special shock absorber which cushions the loading and unloading action. Various sizes available.

Labor . . .

near Wilmington by directing 12 operating engineers to return to their jobs.

The men, members of the International Union of Operating Engineers, were found to have violated the union's contract, when they went on strike after contractors refused to renegotiate a two-year contract after only one year had elapsed.

All were employed by the Conduit and Foundation Company, contractors on the bridge traffic interchange at New Castle. Their refusal to operate shovels, concrete mixers and the like was slowly throttling work on the traffic exchange for the big bridge—now scheduled to open to traffic in August.

Labor briefs . . .

• **Employment up**—Employment in contract construction rose seasonally to reach nearly 2,500,000 in April—375,000 more than a year ago—according to the Bureau of Labor Statistics.

• **TVA strike ends**—More than 675 laborers and operating engineers were back at work at TVA's Shawnee steam plant last week, after a one-day walkout. The men had left their jobs in protest against lack of action by the WSB on a wage dispute. Union stewards advised return to work.

• **Seeks injunction**—Carl E. Kitt, Huntington, Indiana, contractor, has filed an injunction suit against officers of the local carpenters' union, to end picketing at a building being constructed by Kitt. The contractor charged he was forced to stop construction by "unlawful" picketing.

• **Ironworkers back**—A labor dispute—over wages—that idled AFL ironworkers and tied up construction work in Indianapolis, was settled when the men agreed to accept a state arbitration board-recommended 24½-cent-an-hour pay boost.

• **Carpenters hold out**—Striking carpenters at Sioux Falls, S. D. rejected a contract offer of 3½-cent-hourly wage increase immediately, and 11½-cents later (if WSB approves).

• **Bricklayers get more**—Arizona bricklayers have received a 10% pay hike, the scale now going up $2.40 for a total of $26.40 for an eight-hour day.

• **End controls**—William Hutcheson, president of the AFL Carpenters union, threw the weight of his group behind moves to end all price-wage controls by June 30.

Use This New-Billet Bar for Maximum Bond

To be sure of maximum bond strength in concrete, use the improved Bethlehem Reinforcing Bar.

The Bethlehem Bar provides maximum bond because of the tenacious gripping action of its specially designed lugs. These lugs are alternately sloped and uniformly spaced, and meet the deformation requirements of ASTM Specification A305. The firm anchorage they make possible means that wide tensile cracks in the concrete are unlikely to occur.

Bethlehem Reinforcing Bars are rolled as round sections, and are made from new-billet steel which meets ASTM Specification A15. In conformance with Simplified Practice Recommendation R26-50 of the United States Department of Commerce, the size of each bar is designated by a number, branded on each deformed bar to facilitate field identification. No change has been made in either the standard unit weights or nominal cross-sectional areas—therefore there is no need to alter basic design practices. Bar numbers, old size designations, areas and diameters are shown in the table below.

Our new reinforcing bar descriptive sheet gives concise information about the Bethlehem Bar. Keep one handy. Ask the nearest Bethlehem sales office for your copy. Or drop a line to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

NEW BAR NUMBER	2	3	4	5	6	7	8	9	10	11
OLD SIZE	1/4 in. ROUND NOT DEF.	3/8 in. ROUND	1/2 in. ROUND	5/8 in. ROUND	3/4 in. ROUND	7/8 in. ROUND	1 in. ROUND	1 in. SQUARE EQUIV.	1-1/8 in. SQUARE EQUIV.	1-1/4 in. SQUARE EQUIV.
Nominal Area (Sq In.)	.05	.11	.20	.31	.44	.60	.79	1.00	1.27	1.56
Nominal Round Diam.	.250	.375	.500	.625	.750	.875	1.000	1.128	1.270	1.410

BETHLEHEM REINFORCING BARS

CONSTRUCTION BUSINESS

Construction awards show gain for May

Showing a rise of 22.5% over totals for April, engineering construction awards for May reached $1,267,995,000, ENGINEERING NEWS-RECORD reports said last week.

The figure for the five-week month compared with $1,043,434,000 reported for April (ENR May 10, p. 81).

With the May figures added, the five-month total of contracts awarded in 1951 now has reached $6,255,842,000. This is a 35% increase over the same period of 1950, when the cumulative total was $4,411,346,000.

• **Components**—First in line—as it has been for some months, in response to the demands of a war-geared economy—was private industrial construction. In this category, $318.9 million worth of contracts were awarded, representing an increase of $9.2 million over April.

Next heaviest category was private residential construction, with a five-week total of $266 million (a sharp rise from April, when $133 million of contracts were awarded); public buildings, at $164.6 million; roads and streets, with $124.9 million; public unclassified, at $111 million. Commercial building totals were $65.3 million—up $29 million over April. Waterworks, sewerage, both public and private bridge work also registered small gains for May, as compared to April.

• **Comparison**—Comparison between the five-month periods of 1951 and 1950 gives an indication of the trend. (It should be noted that the five-month period in 1951 contained 22 weeks, in 1950, 21 weeks.)

Of 13 major classifications recorded by ENR (see table below), only five showed declines in 1951 under 1950. These are: Waterworks, with a cumulative total of $95.9 million, is down 4%; bridges, at $115.6 million, down 19%; streets and roads, at $438.9 million, down 10%; private residential construction, at $914 million, down 40%; and general commercial building(at $284 million, down 27%.

On the upswing side, biggest percentage increase in the period this year is again in industrial buildings. With a cumulative total of $2.1 billion, this category is 323% above 1950. Other big gains are in: public residential construction, at $232 million, up 131%; private bridge work, at $7.4 million, up 186%; private unclassified, at $412.4 million, up 90%; public unclassified, at $274.9 million, up 70%.

• **Geographic**—By sections of the U. S., the South led for May with a total of 286.3 million contracts awarded. It was followed closely by the Middle Atlantic, West of Mississippi and Mid West areas, in that order, with totals of $253.9; $248.2 and $246.7 million, respectively.

New England was far in the rear, with $50.7 million contracts for the month.

Cost indexes steady with slight decreases

After a quick rise in May, costs of construction steadied down to fractional percentage rises for June, according to reports to ENGINEERING NEWS-RECORD.

For June (see also pp. 17 and 19 this issue) the ENR Construction Cost Index was 542.68, the Building Cost Index 400.75. These figures represented a 0.4% decline for Construction Cost, and a 0.08% decline for building cost under May (ENR May 17, p. 75).

• **Factors**—The steadying of the index represented a nice balancing of a number of factors—including a slight drop in prices of most lumber and of brick, and equally slight upward changes in labor rates.

Lumber facts, as shown in ENR's 20-cities survey, were: Fir 2x4 were $109.955 per Mfbm, a drop of 1.4%; Pine 2x4 were quoted at $93.517 per Mfbm, a drop of 1.9%. Common brick, quoted at $31.102 per M, was down 0.5%.

Bulk cement went up slightly, being quoted at $3.158 per barrel, a rise of 0.1%; no change was indicated in structural steel; ready-mixed concrete, listed at $10.945 per cu yd, was up 0.4%.

Wage rates on the five categories reported (common, skilled, bricklayers, structural ironworkers and carpenters) were up percentagewise from 0.4 to 0.9%. As June began, however (see also p. 77) there were a number of wage raises held in abeyance, pending decision by the Wage Stabilization Board.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD — MAY, 1951

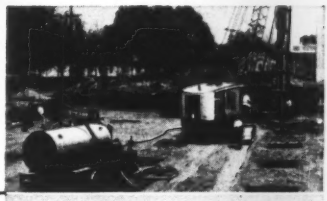
Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Five Weeks — Thousands of Dollars (000 Omitted)

	May, 1951							U. S. Cumulative—Five Months		% Change	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1951 (22 wks.)	1950 (21 wks.)	'50 to '51 Aver. wk.	Canada May, 1951
Public Works											
Waterworks	209	947	4,279	2,926	3,651	4,305	**16,317**	**95,927**	95,730	— 4	2,728
Sewerage	2,536	2,560	4,887	10,462	9,282	4,480	**34,207**	**139,474**	95,243	+40	1,461
Bridges	1,869	4,133	6,039	6,218	5,838	4,614	**28,711**	**115,659**	136,892	—19	856
Earthwork and waterways	140	9,062	4,692	346	16,964	8,828	**41,032**	**246,695**	175,339	+34	52,881
Streets and roads	2,755	11,994	29,033	22,251	46,184	12,712	**124,929**	**438,935**	464,415	—10	13,074
Public buildings, residential	1,607	11,375	20,998	4,460	7,947	2,094	**48,481**	**232,052**	95,688	+131	1,780
Other public buildings	22,467	29,722	25,303	16,212	35,743	35,174	**164,621**	**965,576**	687,111	+34	13,810
Unclassified	10,953	4,046	24,479	2,511	25,899	43,353	**111,241**	**274,987**	154,614	+70	19,561
Total Public	**42,536**	**73,839**	**119,710**	**65,386**	**151,508**	**116,560**	**569,539**	**2,509,305**	**1,905,032**	**+26**	**106,151**
Federal government (included in above classifications)	28,106	35,432	34,085	4,974	46,369	61,007	**209,973**	**973,236**	609,880	+52	28,739
Private											
Bridges		4,000					**4,000**	**7,438**	2,483	+186	
Industrial buildings	6,242	32,923	108,050	117,894	32,467	21,369	**318,945**	**2,128,139**	479,897	+323	59,113
Com'l. buildings, residential	1,150	117,070	38,901	49,429	29,491	30,049	**266,090**	**914,270**	1,442,790	—40	6,180
Other commercial buildings	780	24,873	8,329	13,226	9,849	8,275	**65,332**	**284,215**	373,434	—27	4,010
Unclassified	55	1,255	11,378	775	24,957	5,669	**44,089**	**412,475**	207,710	+90	18,900
Total private	**8,227**	**180,121**	**166,658**	**181,324**	**96,764**	**65,362**	**698,456**	**3,746,537**	**2,506,314**	**+43**	**88,203**
Total Engineering Construction:											
May, 1951 — 5 weeks	**50,763**	**253,960**	**286,368**	**246,710**	**248,272**	**181,922**	**1,267,995**				**194,354**
Apr., 1951 — 4 weeks	47,083	145,256	*159,039	180,364	288,330	223,362	**1,043,434***				64,198
May, 1950 — 4 weeks	55,176	277,333	130,557	140,315	186,907	140,865	**931,153**				48,519
Five Months — 1951	**191,367**	**1,160,659**	**1,347,409**	**1,138,319**	**1,585,382**	**832,706**		**6,255,842**		**+35**	**503,391**
Five Months — 1951	231,185	1,125,931	636,012	591,566	993,104	833,548			4,411,346		233,493
% Change '50 to '51	—21	—2	+102	+84	+52	—5					+106

* Revised.

IN ACTION... Building for National Defense .. Cleaver-Brooks Heaters .. Boosters .. Boilers



Cleaver-Brooks heavy duty, mobile trailer-mounted steam boiler at work supplying steam for pile-driver.

Cleaver-Brooks Tank-Car Heater in action bringing tank-car of road oil up to application temperatures.

Cleaver-Brooks Pumping Booster heating tank-car of bitumen to application temperature and pumping material into distributor.

Hundreds of Cleaver-Brooks units are at work meeting vitally important "RUSH" military assignments and making quick work of building roads, airports, landing fields, military bases.

Cleaver-Brooks equipment in service on defense construction projects include: Tank-Car Heaters — portable steam generators that are fast-steaming for rapid heating of road oils in tank-cars; Portable Pumping Boosters that heat tank-cars of bitumen; and mobile steam boilers that provide steam for pile driving, heating, cleaning, thawing and other construction needs.

Cleaver-Brooks equipment is preferred for its known reliability and fast economical operation, wherever steam or heat is required in road building and construction.

Write for catalogs and complete information.

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Builders of Equipment for the Generation and Utilization of Heat

TANK-CAR HEATERS • BITUMINOUS BOOSTERS
PORTABLE AND STATIONARY STEAM BOILERS

3 CUBIC YARD MIXER
GUARANTEED TO MIX AND AGITATE IT'S RATED CAPACITIES AND CERTIFIED TO COMPLY WITH TRUCK MIXER MANUFACTURERS BUREAU STANDARDS AS APPROVED BY N.R.M.C.A.
4 CUBIC YARD AGITATOR
N.R.M.C.A. REGISTRY NO. 3948

Ask for this credential when you buy concrete

The Bureau rating plate is available to all manufacturers who meet its quality standards and requirements.

However sympathetic you may be to the profit motive, you don't want *your* jobs served by truck mixers that are too small to properly mix a standard batch.

Deficiencies in drum cubics cannot be measured by the eye. *But you can instantly detect the absence of this rating plate.*

This rating plate on a truck mixer guarantees that it has the proper design and *full amount of free mixing space* needed to produce quality concrete. Look for it whenever you approve or buy concrete ready-mixed.

Affiliated with The National Ready Mixed Concrete Association

Truck Mixer Manufacturers Bureau

BLAW-KNOX DIVISION, Pittsburgh, Pa.
CHAIN BELT COMPANY, Milwaukee, Wis.
CONCRETE TRANSPORT MIXER CO., St. Louis, Mo.
THE JAEGER MACHINE COMPANY, Columbus, Ohio
THE T. L. SMITH COMPANY, Milwaukee, Wis.
WORTHINGTON PUMP & MACHINERY CORP., Dunellen, N. J.

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ENGINEERING NEWS-RECORD

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Construction business . . .

Building material output moves upward

After a long period of decline, production of building materials rose sharply in March, the U. S. Department of Commerce said as it released its monthly Index of Construction (1913 = 100).

The March index figure (unadjusted) was set at 167.2, as compared to 141.5 for February (CD 5/2/51). Adjusted for seasonal trends, the March figure reads 176.9, compared to February's adjusted figure of 171.5. The index had been in a steady decline since a high of 192.2 reached in August, 1950.

The individual components of the index showed increases all along the line. Lumber production was at 137.2, compared to 115.3 for February; hardwood flooring for March was 192.8, compared to 165.1 for February; brick was 135.6, compared to 107.1. Cement production rose to 183.6 over February's 149.2.

Production of wire nails was at 139.4, up from 118.6 in February; fabricated structural steel was at 162.3, compared to 139.1 in February. Concrete reinforcing bars were measured at 152.4, up from 133.8; softwood plywood was 277.7, up from February's 233.2.

Business briefs . . .

• **Japanese cement**—In anticipation of a continuing world-wide shortage of cement, the Japanese cement industry is planning to expand its capacity to 600,000 tons a month—a goal set for October of this year. Average Japanese production in the first quarter of 1951 was 455,150 tons per month.

• **Progress check**—In order to gage the progress of industrial expansion under the accelerated tax amortization program (ENR Apr. 19, p. 27), the Defense Production Administration is now conducting a survey of all companies that have received such certificates. DPA now requires a quarterly report (Form DPAF-1) calling for such answers as: Exact location, contracts awarded, revisions of estimated costs, value in place at the end of quarter, added capacity available.

• **Aluminum capacity**—The Defense Minerals Administration is still looking for producers to sign up to produce something like 242,000 tons of aluminum per year. Established producers have already agreed to add about half the 446,000 tons that mobilization officials set as a goal—but there are few takers for the rest.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
July Materials, and Labor Prices will appear in July 5, 1951 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C.L lots cash. dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block			CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand	grav.	Lt. wgt. agg.	
Atlanta	$3.76	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191		$11.50
Baltimore	3.68	3.37	3.33	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a		10.80
Birmingham	3.11	2.68	2.82½	2.24a	2.24a	1.94a	2.50	2.50	1.10	1.30	.165	.165		7.85
Boston	3.96	3.65	3.58	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a		11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b		11.50
Cincinnati	3.46	3.18	3.16	2.00‡c	2.00‡c	2.05‡c	2.35‡h	2.35‡h	....	....	.21	.225a		10.95f
Cleveland	N. A. in C. L.			2.05-f	1.85f	1.65	3.65a	3.65a	2.85‡	2.85‡	....	.23		13.00g
Dallas	2.95	2.65	2.70	2.15	2.15	1.84	2.22	2.38	....	....	.125e	.215		9.30
Denver	3.80	3.64	3.89	1.85	2.00	1.20	....	....	....	....	.22	.255a		10.10
Detroit	3.25f	2.98	3.04	4.00‡b	4.00‡b	3.50‡b	4.00‡	4.00‡	4.00‡	4.00‡	.19	.20a		10.50f
Kansas City	3.30	3.03	3.15	1.90‡	1.90‡	1.50a	1.90‡a	1.90‡a	....	....	.23ag	.23e		10.95b
Los Angeles	4.00g	3.52a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11f	.225		10.80hm
Minneapolis	3.68cd	3.37cd	3.33	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23ik	....		11.25fi
Montreal	2.66ac	2.51ac	....	2.50	2.50	2.00i	.85ijp	1.50ij	....	....	....	.16a		10.50ek
New Orleans	3.20e	2.80e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....		12.90
New York	3.78	3.48	3.35	2.35bk	2.50bk	1.60bk	2.50bl	2.50bl	....	....	....	....		11.40an
Philadelphia	3.38/3.68‡	3.07/3.37‡	3.38‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....		11.50
Pittsburgh	3.32	3.04	....	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d		11.00
St. Louis	3.28/3.38b	2.94/3.10b	3.22	2.70am	2.70am	2.20/2.70am	1.70j	1.70j	1.25	1.25	.215	.27cs		10.40
San Francisco	3.35	2.95	....	1.86	1.86	1.96	1.96	....	....	....	....	.26c		10.75c
Seattle	3.75a	3.25a	3.85	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j		10.95j

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paying up to $3.80 for cement brought in from outside sources. *g* Warehouse pickup.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *p* New price not available as we go to press.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5‡ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10-100 cu. brackets. *e* 2,000 lb. coner. *f* 2,500 lb. comp. *g* Aver. haul 7-9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y	2.60†	Buffalo, N. Y	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y	2.75†	Montreal City	2.31
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

†*Prices to hold for second quarter of 1951.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	.....	.....	$21.00v	$0.15	$.09w	$.17w	$.09s	$.09	$0.12
Baltimore	150.00‡	57.70‡	.....	$22.00	.....	.....	.....	.....	.....	.....	.....	.....
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	$35.50a	22.00v	35.50v	.165a	.22	.09a	.095	.22
Chicago	155.00‡	90.00‡b	4.50/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16w	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	180.00	55.00d	4.12g	26.50	38.50	26.50v	38.50v	.12w	.24w	.115	.14	.28
Dallas	e	40.00	e	23.95	42.99	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.25	.....	26.25v	.....	.1162w	.....	.092	.....	.215
Kansas City	e	e	e	18.55cl	.....	.....	.....	.0725cw	.....	.0635c	.....	.....
Los Angeles	e	.....	e	15.50dmz	.....	15.50dvz	.....	17.00dz	.....	16.00dv	.0825f	.1525f
Minneapolis	.....	.....	2.83h	26.50	36.50	24.50v	35.50v	25.00	35.50	.095	.1225	.2225
Montreal	137.00	e	e	27.00n	36.65n	16.70nu	18.70nu	16.30nu	18.30nu	15.20ns	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	.....o	.08ew	.....o	.0882	.085	.....
New York	.....	.....	3.12f	25.50	28.02q	24.50v	44.04qv	.1040w	.1819qw	.1040	.1040	.1847q
Philadelphia	175.00	110.00	4.06	22.00	.....	22.00v	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	22.00	36.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	.....	.1698	.....	.0865	.089w	.....	.15	.....
San Francisco	.....	63.73e	.....	17.00q	32.50qp	17.50qkv	.....	19.00q	.....	17.50v	.085	.145
Seattle	.....	.....	.....	17.00h	37.50h	16.75hv	.....	19.50h	23.50hr	18.50hs	.09h	.10h

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat. *i* 3 x 3½ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50-110 penetr. *l* Less than 100 penetr. *m* 40-80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Used drums. *r* In customer's drums. *s* Shipped in drums, per drum. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT'L SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. struc-tural	SHEET PILING	STEEL RAILS Per Net Ton			TRACK SUPPLIES			
						Standard	Light	Re-rolled	Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	....
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	$9.85
Cleveland	....	....	3.70	7.85	....	....	....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	....	....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	....	....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	....	....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price *u* 5 tons to carload lot *b* New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH *k* Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING *d* Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 10 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.54	5.49*l*	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00*p*	52.00*p*			
Boston	6.20*mk*	6.19*ek*	6.19*ek*	....	.10/.15	39.00	45.00			
Chicago	5.70	4.95*ff*	4.95*ff*	.0625	....	34.50‡	38.50‡			
Cincinnati	6.24*ak*	5.84*r*	....	....	....	38.50*nzee*	41.50*nzee*			
Cleveland	5.82	4.81*e*	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10*c*	....	....	....	60.00*s*	72.00*ys*			
Detroit	6.09	5.59*n*	....	....	.10	53.00	58.00			
Kansas City	6.30*nn*	5.90*ff*	5.90*ff*	....	....	38.00	40.50			
Los Angeles	6.45*fhh*	6.15*g*	....	....	.15	48.00	54.00*kk*			
Minneapolis	6.16*hh*	7.32*ll*	7.32*ll*	....	.15	37.00	40.00			
Montreal	6.75*i*	4.75*i*	4.75*g*	....	....	44.10*h*	46.80*h*			
New Orleans	....	5.55*ak*	....	.05	.10	40.00	40.00			
New York	6.30*r*	6.25	6.25	....	.30	38.50*td*	45.00*td*			
Philadelphia	5.90*b*	5.95*k*	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis	6.03*a*	5.34*c*	5.34*c*	....	....	47.00*aa*	53.00*aa*			
San Francisco	7.15*n*	5.75*l*	....	....	.15	40.50	43.50			
Seattle	4.05*e*	5.35*el*	....	....	....	57.00*smm*	47.00*smm*x			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn., $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.89

‡ Delivered. *b* 1–5 tons, add 35¢. Less than 1 ton, add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq.yd. *n* 5–10 tons. *o* 5 to 15 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1½ in., 1¼ in., 10¢; ⅞ in., ¾ in., ⅝ in., 15¢; ½ in., 25¢; ⅜ in., 50¢; ¼ in. 80¢; ½ in. $1.30. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000 19,999 lbs. *ii* Rolled at Geneva mill. 400–999 lbs. *kk* ¼" ribbed. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. *ss* 10 tons to CL. *aaa* 2000–9999 lbs.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in. *a*	VITRIFIED SEWER PIPE Per foot, Delivered std. 8 in. s.s.	ASTM C13-44T std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$89.00	$0.43	$0.67	$3.33*gg*	$7.00*gg*	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.26*A*	11,275*A*	178.20	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25*m*	2.75*m*
Boston	113.00	.532*uvx*	1.026*uvy*	4.41*uvy*	11.685*uvy*	187.80*r*	289.20*r*	1.55*mg*	3.80*mg*
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.502	1.0935	4.455	11.685	154.80	239.70	.75*m*	2.80*m*
Cleveland	108.00	.462*x*	.89*fx*	3.69*x*	10.045*x*	147.00	229.00	.80*m*	3.00*m*
Dallas	107.00	.436	.822	3.234*b*	9.17*b*	....	....	.49	1.60
Denver	115.00	.43*dd*	.74*dd*	3.18*dd*	....	....	....	.74*m*	2.50*m*
Detroit	108.00	.70	1.35	5.38	14.40	240.00*m*	360.00*m*	.80	3.20
Kansas City	106.00	.50	.88	3.50	....	216.70	....	.70	3.00*g*
Los Angeles	122.00	.54*l*	1.07*l*	5.24*l*	13.06*l*	228.20	548.90	.85	2.40*ff*
Minneapolis	102.80/112.00	.66*mo*	1.20*mo*	4.85*mo*	....	....	....	1.355*h*	3.85*h*
Montreal	100.00	.85*z*	1.50*z*	5.25*z*	....	....	....	80.60*kaa*	237.30*khaa*
New Orleans	101.50	.496	.90	5.00	....	251.00*bb*	441.00*bb*	.65	2.29
New York	111.00	.70	1.19	4.77	12.71	....	....	1.05	2.20
Philadelphia	110.00	.65	1.25	4.95*A*	12.65*A*	300.00‡	350.00‡	1.55*h*	3.75*h*
Pittsburgh	109.00	.386*m*	.752*m*	2.83*m*	7.022*m*	147.50	230.00	1.05*h*	2.50*h*
St. Louis	103.00	.51	.93	3.65	8.50	....	....	1.35*il*	3.00*hl*
San Francisco	122.00	.61*d*	1.20*d*	5.03*d*	12.57*d*	240.00*dl*	400.00*dl*	.95	3.20
Seattle	124.00	.51*b*	.91*b*	....	....	150.00*e*	....	.80*ee*	2.64*ee*

‡ Delivered. *a* Class B & heavier. Based on existing freight rates; subject to rate change. One pipe and class A, $5 per ton additional. 4 in., $7 per ton additional, 30 in. and larger, usually, $1 per ton less. *b* Extra strength ASTM C 200-44T. *c* 4-in., $90. *d* SS361-A. *e* 30-in. *g* Culvert pipe. Reinforced, ASTM C76-41. *h* Reinforced, ASTM C75-41. *i* Reinforced, ASTM C76-37. *j* Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 tons, per price per ft. *t* Within switching limits. *u* ASTM C13-40. *v* C.L. f.o.b. origin, freight allowed. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60-1941 specifications used. *aa* No. standard specifications in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, Newton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. *ff* 21". *gg* Extra strength ASTM C 200-50. *A* Standard strength.

	*WROUGHT STEEL PIPE— (Full standard weight)																								
	3½ to 6 in. Butt Weld‡ %	3½ to 6 in. Lap Weld‡ %	3½ to 6 in. Galv. %	8 in.	10 in.	*b* Continuous
Mill	2½ & 3 in. Black %	2½ & 3 in. Butt Weld‡ %	2½ & 3 in. Galv. %	4 in.	5 in.	6 in.	8 in.	10 in.	12 in.	14 in.	16 in.	18 in.	20 in.	24 in.	30 in.	36 in.	40 in.	48 in.	50 in.	60 in.	70 in.	80 in.	90 in.	100 in.	120 in.
Lorain, Ohio	43.5	24.0	22.0	36.5a	33.5a	38.0e	38.5a	24.0ab	17.5a	18.0e															
Aliquippa, Pa.	43.5	24.0	22.5	36.5a	33.5a	38.0e	38.5a	24.0ab	17.5a	18.0eb															
Sparrows Pt., Md.	41.5	23.0	22.0	35.5a			35.5a	23.0ab	15.5a	16.0ab															
Benwood, W. Va.	43.5	24.0	22.0				38.5a	24.0	17.5a																
Youngstown, O.	43.5	24.0	22.5				38.5eb	24.0	18.5eb																
Indiana Harbor, Ind.	42.5	23.0	22.0				35.5a	23.0ab	15.5a																
Sharon, Pa.	43.5	22.0	22.0				38.5a	22.0	17.5a																
Wheatland, Pa.	43.5	22.5	22.5				38.5eb	22.5	18.5eb																
Ellwood City, Pa.	43.5b	24.0b	23.0b				38.5eb	24.0b	18.5eb																
Ellis, Pa.	43.5b	24.0b	23.0b				38.5eb	24.0b	18.5eb																
Fontana, Calif.	32.0b	18.5b	17.5b				32.0eb	18.5b	12.0b																

‡ Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *e* 5 and 6 in.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1¼ in., 17¢; 1½ in., 22½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. and 1½ in. black, + 20.0, galv. + 48.0; 1½ in. black, + 14.0 galv. + 44.5; 2 in. black, ¼ galv. + 34.5. *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 47.5; 4½ in. to 8 in. black + 17.5, galv. + 43.0. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R/A	6x12 R/A	12x12 R/A
Atlanta	† **$73.00**	**$76.00**	**$67.00**	**$69.00**	**$73.00**	**$76.00**	**$75.00**		
Baltimore	* **92.50**	**94.50**	**80.00**	**80.00**	**85.00**	**85.00**	**105.00**		
	105.00g	*106.00g*	*104.00g*	*104.00g*	*104.00g*	*103.50g*	*162.50*	*$106.00*	*$106.00*
Birmingham	† **83.00**	**83.00**	**70.00**	**80.00**	**83.00**	**85.00**	**95.00**		
	85.00	*85.00*	*75.00*	*80.00*	*80.00*	*79.00*	*85.00*	*85.00*	*85.00*
Boston	* **98.102**	**104.106a**	**95.99a**	**98.103a**	**103.106a**	**110.00a**			
	b 76/85	*85/95*	*105.00*	*105.00*	*105.00*	*105.00*	*120.00*	*125.00*	*125.00*
Chicago	** **98.00**	**101.00**	**90.00**	**93.00**	**93.00**	**100.00**	**105.00**		
	105.00	*105.00*	*110.00*	*107.00*	*107.00*	*107.00*	*110.00*	*110.00*	*110.00*
Cincinnati	* **100.00**	**102.00**	**88.00**	**95.00**	**98.00**	**100.00**	**120.00**		
	125.00	*128.00*	*125.00*	*125.00*	*127.00*	*130.00*	*140.00*	*145.00*	*140.00*
Cleveland	** **95.00**	**98.00**	**93.00**	**95.00**	**97.00**	**105.00**	*130.00*	*130.00*	*130.00*
Dallas	†† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**		
Denver	*	*Not in stock*		*135.00*	*135.00*	*135.00*	*137.00*	*156.00*	*156.00*
Detroit	‡ **106.00**	**108.00**	**102.00**	**108.00**	**110.00**	**115.00**			
	103.00	*104.50*	*105.00*	*105.50*	*104.50*	*103.25*	*120.00*	*120.00*	*120.00*
Kansas City	* **125.00**	**125.00**	**125.00**	**125.00**	**125.00**	**125.00**			
	125.00	*125.00*	*125.00*	*125.00*	*125.00*	*125.00*	*145.00*	*155.00*	*155.00*
Los Angeles	*j 103.00*	*103.00*	*101.00*	*101.00*	*101.00*	*101.00*	*118.00*	*128.00*	*118.00*
Minneapolis	*k 130.00*	*130.00*	*130.00*	*130.00*	*130.00*	*130.00*	*150.00*	*150.00*	*150.00*
Montreal	*ab* 92.00	98.00	93.00	95.00	107.00	109.00			
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*140.75*		
New Orleans	†† **100.00**	**100.00**	**97.00**	**95.00**	**95.00**	**99.00**	**118.00**		
	† *100.00*	*102.00*	*107.50*	*108.00*	*107.00*	*104.50*	*118.00*	*122.00*	*112.50*
New York	‡ **107a/110**	**110 112a**	**102a 110**	**110 115**	**115 120**	**120/125**	**150/160**		
			Range from $118a to $124.00				*135/150*	*145/150*	*145/150*
New York	** **89.00**	**92.00**	**76.50**	**88.00**	**91.75**	**96.00**	**120.00**		
	103.00	*104.00*	*111.00*	*111.00*	*111.00*	*111.00*	*118.00*	*125.00*	*125.00*
Philadelphia			**Range from $117.00 to $127.00**				**117/127**		
			Range from $130.00 to $140.00				*130/140*	*140/150*	*140/150*
Pittsburgh	†		**Range from $85.00 to $90.00**			**90/100**	**90/105**		
			Range from $95.00 to $105.00			*95/105*	*105/120*	*140/150*	*140/150*
St. Louis	‡c **115.00e**	**117.00e**	**103.00f**	**115.50d**	**117.00e**	**123.00d**			
			131.50e	*131.75e*	*131.75e*	*132.25e*	*153.25e*	*164.50*	*164.50*
San Francisco	*A† 75/80*	*75/80*	*75/80*	*75/79*	*75/79*	*74/78*	*75/78*	*77/82*	*77/82*
Seattle	† *82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. †† Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd. 4. May prices same as June.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00

LONG LEAF Y. P.

	2x12 R/A	12x12 R/A
Merchantable grade up to 20 ft.		
	$158.00	**$158.00**
	115.00	**130.00**
	134.00	**134.00**
	145.00	**145.00**
	108.00	**98.00**
	125.00	
	148.00	**140.00**
	210/240	**210/240**
	190/200	**190/200**
	95/100	**110/120**

PLYWOOD

Rail freight increment (See note for base price)

	3/8"	3/4"
	$22.32	$27.24
	22.86	27.90
	21.78	26.58
	22.86	27.90
	18.72	22.80
	21.78	26.58
	22.20	27.12
	18.72	22.80
	13.92	16.98
	21.78	26.58
	16.56	20.16
	13.38*ab*	16.26*ab*
	16.56	20.16
	18.72	22.80
	22.86	27.90
	22.86	27.90
	22.56	27.48
	18.72	22.80
	10.08*a*	12.30*a*

per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1", $204.00; on 2", $231.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum. * Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	WINDOW GLASS: Single or Double Thickness B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2275
Baltimore	70–10%	78–10%	.2275
Birmingham	83%	83%	.1750
Boston	79–10%	79–10%	.2275
Chicago	78%*f*	78%*f*	.2275
Cincinnati	78%	78%	.2275
Cleveland	78–10–10%*f*	78–10–10–10%*f*	.2675
Dallas	75%	75%	.2350
Denver	81–5%	81–5%	.2325
Detroit	78–10–10%	78–10–10%	.2275
Kansas City	80–10–10%	80–10–10%	.2325
Los Angeles	75%	80%	.23
Minneapolis	78–10%	78–10%	.2325
Montreal	45–15%*bc*	45–15%*bc*	20.00*hi*
New Orleans	78%	78%	.2325
New York	82%*f*	82%*f*	.38*g*
Philadelphia	76%	78%	.2275
Pittsburgh	82%	82%	.20
St. Louis	70–10%*e*	70–10%*e*	.2325
San Francisco	70%	76%	.2275
Seattle	52%*e*	53%*e*	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Jan. 16, 1946. *f* Disc from Oct. 1950.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $21.75. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – .1875	.2125–.22	.2325–.24
Rocky Mtn. States	.18 – .1925	.2125–.22	.2325–.245
Pacific N. W. States	.1775–.19	.21 – .2225	.23 – .2425
Pacific S. W. States	.175 – .1825	.2075–.21	.2275–.2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail: Pine*	By Rail: Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in. — 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in. — 2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in. — 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in. — 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in. — 2-ft. from butt	6-in.	50 to 69-ft.	.50/.60	....
14-in. — 2-ft. from butt	6-in.	70 to 79-ft.	.65	.85
14-in. — 2-ft. from butt	6-in.	80 to 85-ft.	.75	.86
14-in. — 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in. — 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak *i*	....	....	....	....
	Pine *i*	....	....	....	....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak	....	4.00	....	5.00
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2 15/2 33	3 10/3 13*a*	3 00/3 10	4 15/4 25*a*
St. Louis	White Oak	2.88	....	3.57	....
	Red Oak	2.78	3.43*a*	3.45	4.42*a*
	Sap Pine or Cypress	3.26*a*	....	4.17	....
San Francisco	Douglas Fir	2.56*e*	3.84*ef*	3.36*bf*	5.04*caf*
Montreal	Birch or Maple	*h*	...*h*	*h*	....*h*

Tr.— Treated; Untr. Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$27.78	$27.78	$19.00	$17.50	$17.50
Baltimore	$180.00	$191.00	$358.00	$402.00	$530.00	$605.00	37.00*k*	42.00*k*	30.00	20.60	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*jf*	28.00*xq*	26.37	17.10	.....
Boston	149.00†	161.50†	298.00†	338.00†	.....	.....	33.50*n*	36.50*n*	32.30†	27.90†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	38.50*j*	46.00*j*	26.00*j*	24.25*j*	.....
Cleveland	149.00**	156.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ee*
Dallas	.....	110.00	.....	.....	.....	.....	18.75	.....	31.90	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	118.18	126.08	236.40	.....	293.30	335.20	33.50*cc*	32.50*cc*	32.00	32.00	.....
Kansas City	115.00	122.50	245.00	245.00	305.50	367.00	26.00*o*	26.00*o*	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	20.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*wp*	.....	.....	32.00*xp*	36.00	37.00*bbe*	28.00*bbe*	38.00*bbde*
Montreal	150.00*aq*	162.50*au*	300.00*au*	.....	.....	.....	26.50	36.50	34.80	.....	24.60*u*
New Orleans	170.00	170.00	310.00	.....	.....	.....	31.00	.....	.....	20.00	20.00
New York	121.60*h*	129.70*h*	178.30*wh*	194.60*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	126.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	28.50
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	40.00*y*	25.00	23.00	2.97*m*
St. Louis	136.00*cc*	156.00*cc*	226.00*cc*	307.50*cc*	345.00*cc*	.....	40.00*sl*	36.25*sl*	85*aaa*	.65*aaa*	1.10*aaspe*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	187.20*a**	.....	.....	35.00	.....	26.30	26.30	2.58*m*
Seattle	160.00*cc*	175.00*cc*	.....	175.00*ccw*	.....	.....	39.00*s*	49.00*s*	37.50*ahh*	1.50*t*	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant. # Per 60 lb sack, no incr., ton price no longer quoted. **Only 1 plant producing, quotes on warehouse delivery, previous quotes were truck deliv. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. casks in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$20.75	$31.025	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	20.50	30.65	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	20.75	31.025	3.90	3.40	....	2.80	2.75	2.75	....	40.50*ee*
Boston	20.50	30.65	....	....	....	2.89*q*	2.79*o*	2.79*o*	.47	43.00
Chicago	20.50	30.65	....	....	....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbr*	43.00‡
Cincinnati	20.50	30.65	....	....	....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	20.50	30.65	3.10*pqqA*	3.37*qqB*	3.10*C*	2.50*q*	2.50*o*	2.50*o*	.36*ff*	40.00*kk*
Dallas	20.75	31.40	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	21.00	31.15	2.96	4.50	2.86	3.25*o*	2.76*o*	2.76*o*	.47*ff*	42.00
Detroit	20.50	30.65	2.35	3.30	2.50	2.50*f*	2.50*f*	2.50	.51	40.00
Kansas City	20.50	30.77	....	2.71	2.65	2.39	2.43*o*	2.43*o*	.313	48.00
Los Angeles	20.50	30.90	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	20.50	28.55/30.77	....	....	....	2.50*idd*	2.50*idd*	2.50*idd*	.34*idd*	37.00*r*
Montreal	....	20.70	3.75*t*	4.20*t*	4.62*t*	3.50*t*	3.25*tf*	3.25*tf*	1.10*t*	2.90*kt*
New York	20.50	30.65	3.45*y*	....	....	2.50	2.50*o*	2.50*o*	.34*z*	37.00
Philadelphia	20.50	30.65	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	20.50	30.65	2.45	2.55	2.20	2.90	2.90*o*	2.90*o*	.39	42.00
St. Louis	20.50	30.65	....	....	....	2.50	2.50*h*	2.50*h*	.36*y*	38.00
San Francisco	20.50	30.90	2.40	3.40	1.35	2.61	3.56*aa*	....	.41	....
Seattle	20.50	31.15	2.51*m*	2.67*m*	....	3.58*mqcc*	3.05*hmcc*	....	.59*mcc*	52.00*jmcc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D260-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *h* Per roll, 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. *r* Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A*. TTTP 27. *B*. TTA 468A. *C*. TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.50	$2.00	$2.25	$2.25	$2.50	$2.50	$2.35	$1.05	$1.05
Baltimore	3.20*c*	2.42	2.80	2.60/2.80	2.50*ic*	2.75	2.50	1.38	1.38
Birmingham	2.75	2.125	2.35	1.975	2.30	2.50	2.50	1.10	1.20
Boston	2.888	2.475	2.70	2.80	2.97	2.75	2.695	1.815	1.815
Chicago	2.825*kA*	2.70*A*	2.80*A*	2.65*A*	2.90*Ax*	2.835*nw*	2.60	2.05*mA*	2.05*mA*
Cincinnati	2.70	2.325	2.50	1.675/2.675	2.50	2.70	2.55	1.65	1.65
Cleveland	2.70*i*	2.825*s*	2.825	2.70*ij*	2.825	2.825	2.825	2.10	1.85
Dallas	3.125†	2.25	2.50	2.25	3.125†	2.50	2.375	1.20	1.35
Denver	3.00	2.35	2.30	2.35	3.00	2.65	2.55	1.50	1.50
Detroit	2.85	2.60	2.85*m*	2.80	2.964*l*	2.85	2.75*m*	1.90	1.90
Kansas City	2.675	2.225	2.375	2.225/2.45	2.825	2.425	2.625	1.65	1.65
Los Angeles	2.75*lB*	2.35	2.50	2.30	3.125	2.625	2.625	1.75	1.75
Minneapolis	2.65	2.22	2.50	2.28	2.75	2.645*n*	2.55	1.67	1.67
New Orleans	2.60	1.975	2.35	2.225	2.275	2.40	2.35	1.10	1.10
New York	3.548*r*	2.096*o*	3.348*o*	3.348*o*	3.599*ar*	3.456*as*	3.286*p*	1.90	1.90
Philadelphia	3.31*i*	2.65*A*	3.05†*A*	2.65	3.075*k*	3.03/3.283*u*	2.825*k*	1.81*A*	1.81*A*
Pittsburgh	3.00	2.65	2.625	2.80	2.625	2.625	2.80	1.60	1.60
St. Louis	3.00*	2.70*A*	2.75	2.70	2.875	2.6775*c*	2.625	1.77	1.77/1.80
San Francisco	3.25*b*	2.375	2.575	2.41	3.00	2.75	2.625	1.70	1.70
Seattle	3.25	2.30	2.50	2.45	3.00	2.65	2.75	1.90	1.95
Montreal*	1.72	1.52	1.62	1.42	1.72	1.62	1.57	1.06	1.00

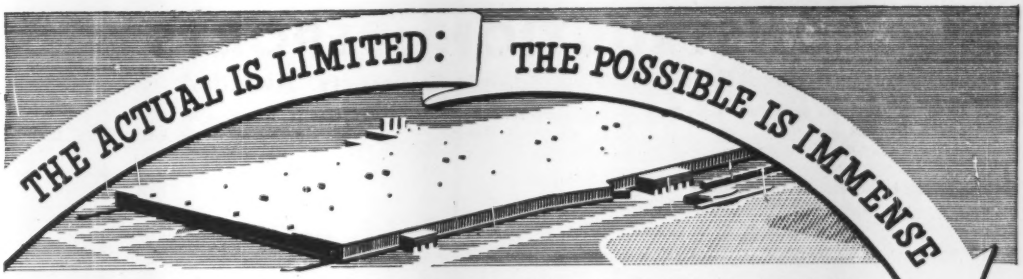
a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 2% for electricians * Cost of living bonus now included in basic wage. *e* Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.37 homes and housing + 5¢ vacation fund. *i* Incl. 2% welfare. *j* Incl. 9¢/hr. welfare. *k* Incl. 7½ ¢/hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5¢/hr. welfare ins. fund. *n* Incl. 6¢/hr. welfare fund. *o* Incl. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20¢ pension fund. *s* Incl. 4% welfare and pension fund and 4% vacation fund. *u* Incl. 1% welfare fund. *t* Still negotiating. *v* Incl. 10¢ welfare fund. *w* Gov't would not approve May incr. *x* Eff. May 1. *y* $2.825 was operating engineers. *A* Subject to W.S.B. approval. *B* Some contrs. paying 3.00 unofficially.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Apr. '51	May '51
Common Wages—Building (8 hr. day)	av. per hr.	.68*	68*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75*	75*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.88*	1.88*
Bricklayers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.05*	1.05*
Struct. Steel Shapes 3"-15" x 12 meters	per metric ton	1,073.30	1111.01
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,218.30	1261.50
½" x 11 meters	per ton	1,228.30	1251.13
⅝" x 11 meters	per ton	1,198.30	1240.25
¾" x 11 meters	per ton	1,188.30	1230.37
⅞" x 11 meters	per ton	1,188.30	1230.37
1" x 11 meters	per ton	1,188.30	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	42.00	42.00
Rose Gravel	per tr. load	38.00	38.00
Cement, Std. Port. (Tolteca)	per ton	130.00	130.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	850.00	850.50
1st Class Pine	per M ft.	1300.00	1300.00
2nd Class Pine	per M ft.	950.00	950.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers). $2.648. **ENR Common Average: $1.615.**



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

© LE Co. 1951

SAVES 14% CONSTRUCTION COST OF HIGHWAY BRIDGE

By **Ned L. Ashton**
Consulting Engineer
Iowa City, Iowa

UTILIZING the economies of welded structural design has saved an estimated $27,000 or 22% in the cost of fabricating and erecting steel work for Iowa City's new highway bridge. 80 tons of steel have also been saved through simpler details and complete elimination of butt plates and rivets. The finished structure is cleaner in appearance, is easier and less costly to maintain.

In erection, girders are bolted in place and field welded. Sidewalks and handrails are entirely shop fabricated by welding and then field welded as complete units to girders with Lincoln "Fleetweld 5" and "Shield-Arc" welders. The 528 man-hours field welding time required was completed at subcontract cost of only $4100.

Fig. 3. Modern Steel Deck Girder Highway Bridge *for Iowa City, Iowa is 480 feet long and carries 2 lanes of traffic. Inset shows simple details of sidewalk cantilever support and rocker shoe. General Contractor: Jensen Construction Co., Des Moines, Iowa. Welding subcontractor: Teleweld Corporation, Chicago, Ill.*

simpler field splices

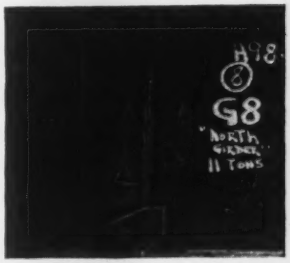


Fig. 1. Joint on Center Girder Section. *Field splices made without aid of auxiliary splice plates attain 100% strength of girder. Clips are used for bolted erection only.*

faster, lower cost fabrication

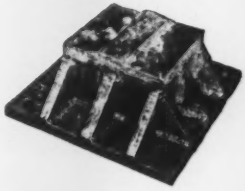


Fig. 2. Fixed Bridge Shoe *supports load of 453,000 pounds on hardened steel line bearing surface 17 inches long. Weld-fabricated at low cost from 2" steel plate.*

SPEEDS CONSTRUCTION OF NEW HIGHWAY BRIDGE

Studies in Structural Arc Welding, describing above bridge, are available to engineers and designers. Write on your letterhead to Dept. 135,

THE LINCOLN ELECTRIC COMPANY

CLEVELAND 1, OHIO

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — **J. A. MAHONEY, Reports** — **M. R. ROESSLER, Statistics**

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Pocasset—SANATORIUM—B.A. 6/11—Barnstable Co. Sanatorium, Wm. J. Lockhart, chn., modernization sanatorium addn. Plans deposit $40. CD 11/27.

Conn., East Hartford—HOUSING—B.A. 6/12—Town Housing Auth., 70 Cannon Rd., 13-1, 100 unit rental housing, Main and Brewer Sts. Plans deposit $100. CD 12/19/50.

Mass., Malden—HOUSING—B.A. 6/12—City of Malden Housing Auth., 90 Plainfield Ave., 250 housing units, near Everett Line, Proj. 22-1. Plans deposit $100 refundable. CD 9/1.

R. I., Cranston—SCHOOL—B.A. 6/12—City, supt. Schools, Park Ave., school, Stadium Area. Plans deposit $100. CD 10/13/50.

Conn., Stratford—SCHOOL—B.A. 6/19—Town Bd. Educ., Town Hall, South End Junior High School, south of Stratford Ave. Plans deposit $75. CD 7/18/50.

Conn., East Hampton—SCHOOL—Bids Asked—Town Bd. Educ., East Hampton, school, Ferrigno Lot-Fifth Ave. Extended date. CD 5/18.

LOW BIDDERS—HEAVY CONSTRUCTION

M. F. Roach Co., 27 Central St., East Bridgewater, Mass. Low Bidder. **$688,905.** Hy. and bridge, Truro, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 190 Nashua St., Boston, Mass. Bids May 18. CD 5/7.

Marinucci Bros. & Co., Inc., 51 Ceylon St., Dorchester, Mass. Low Bidder. **$377,013.** Contr. 161, water supply tunnel, city exten. Shaft 9A, Malden, BOSTON, MASS. State, Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. Bids May 17. CD 5/7.

R. J. Berke, 34 Manernet Rd., Newton, Mass. Low Low Bidder. **$133,345.** Contr. 147, piping, sewage pumping equip., Quincy, BOSTON, MASS. State, Metropolitan Dist. Comn., Sewerage Div., 20 Somerset St., Boston, Mass. CD 4/19, under Mass., Quincy.

▲† Lane Constr. Corp., 37 Colony St., Meriden, Conn. Low Bidder. **$1,000,000.** Runway exten., alert apron, parking apron, taxiway and electric work, Otis Air Force Base, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass.

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I. Low Bidder. **$159,730.** Sheet asph. Type J-1 on 8 in. c. conc. base course with crack control 0.872 mi. Charles St. from Providence-North Providence line to beyond Gillen Ave., R. I. Contr. No. 5104, FAP No. F-17 (13), Providence Co.; **$129,715,** sheet asph. type J-1 on 8 in. c. conc. base course with crack control 10.859 mi. Westminster St. from Exchange St. to Hoyle Square and Dorrance St. from Fulton to Weybosset Sts., R. I. Constr. 5106, Providence Co., RHODE ISLAND, Div. Purchases, State House, Providence, R. I. Bids May 16. CD 5/8.

LOW BIDDERS—BUILDINGS

H. V. Collins, 7 Dyer St., Providence, R. I. Low Bidder. **$468,985.** SCHOOL, DIGHTON, MASS. Town, Dighton, Mass. Bids May 18. CD 5/1.

S. A. & A. Allen Constr. Co., Inc., 262 Washington St., Boston, Mass. Low Bidder. **$586,073.** SCHOOL, Germantown-Palmer St., QUINCY, MASS. City, Supt. Schools, Quincy, Mass. Bids May 17. CD 5/10.

▲ E. Turgeon Constr. Co., Inc., 42 Weybosset St., Providence, R. I. Low Bidder. Base Bid No. 1 **$7,434,317,** No. 2 **$7,374,617;** No. 3, **$7,390,617;** No. 4, **$7,418,317.** Federal HOUSING, RI-14, Hartford Park, PROVIDENCE, R. I. Providence Housing Auth., 263 Chad Brown St., Providence, R. I. Bids May 23. CD 4/24.

CONTRACTS—HEAVY CONSTRUCTION

† Stewart & Williams, Inc. and **T. W. Cunningham, Inc.,** 38 Columbia St., Bangor, Me. Contract Awarded **$777,700.** rehabilitation of Naval Air Facility, incl. roads, bldgs., sidewalks and services, BRUNSWICK, ME. First Naval Dist., 495 Summer St., Boston, Mass. CD 5/23, under LB.

F. B. O'Neil & Son, 22 Preston St., Hartford, Conn. Contract Awarded. **$257,000,** sewer, NEW HAVEN, CONN. City, at City Engr. Office, New Haven, Conn. CD 1/5/45.

Consolidated Constr. Co., Inc., 58 Farmington Ave., Hartford, Conn. Contract Awarded. **$112,850,** sewer constr. Sunrise Park, WATERBURY, CONN. City, P. Wks. Dpt., Waterbury, Conn. CD 2/1/46.

CONTRACTS—BUILDINGS

White Constr. Co., 18 Tremont St., Boston, Mass. Contract Awarded. **$999,800.** 105 HOUSING units Proj. PHA 16-1, Locke St. adjacent to Webster Ave. and Revere Beach Parkway, CHELSEA, MASS. City of Chelsea Housing Auth., City Hall, Chelsea, Mass. CD 5/2, under LB.

▲ Construction Units, Inc., 294 Washington St., Boston, Mass. Contract Awarded. **$2,086,000,** veteran's HOUSING Proj. 200-2, Hancock St., LAWRENCE, MASS. City of Lawrence Housing Auth., 90 Broadway, Lawrence, Mass. CD 5/18, under LB.

Joseph J. Vaccaro, 511 Mystic Ave., Somerville, Mass. Contract Awarded. **$700,000.** surgical unit and altering HOSPITAL, MELROSE, MASS. Melrose Hospital, 565 Lebanon St., Melrose, Mass. Bids Apr. 16. CD 4/10.

David Nassif Co., 500 Statler Bldg., Boston, Mass. Owner Builds. **$180,000.** Industrial PLANT, 151-153 Needham St., NEWTON HIGHLANDS (BR. BOSTON), MASS. Thos. Worcester, Inc., 84 State St., Boston, Mass., archt.

Beacon Constr. Co., 102 Hano St., Allston, Mass. Contract Awarded. **$997,425.** 100 HOUSING units Proj. PHA 19-1, Spring Court, WOBURN, MASS. City of Woburn Housing Auth., 11 Winn St., Woburn, Mass. Awarded May 10. CD 4/2, under LB.

J. W. Bishop Co., 109 Foster St., Worcester, Mass. Contract Awarded. **$300,000.** HOSPITAL addn., WORCESTER, MASS. Fairlawn Hospital, 189 May St., Worcester, Mass. CD 10/20.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

D. C., Wash.—B.A. 6/12—Distr. Comrs., District Bldg., demolition of certain pump foundations and incidental work in Bryant Street Pumping Station on Bryant St. between 2 and 4 Sts. N.W. CD 7/14/4.

N. J., Wanaque—Pompton Lakes—B.A. 6/13—North Jersey District Water Supply Comm., Wanaque Headworks, Wanaque, installing 24,725 ft. 72 in. diam. steel pipe for Ramapo Force Main from Green Swamp Dam No. 4, in Wanaque to Pompton Lakes incl. hy., river and railroad crossings. Plans deposit $10. CD 9/28/45.

New Jersey—B.A. 6/14—N. J. Division of Water Policy & Supply, 520 E. State St., Trenton, N. J., constr. regulating gate, retaining walls, spillway, eight sluice gates and other Prallsville control structures in Delaware and Raritan Canal Feeder, Stockton Hunterdon Co. Plans deposit $10.

† Pennsylvania—B.A. About 6/15—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., seepage control sys., on landside of existing levees along left (east) bank of Lycoming Creek, just above its confluence with West Branch of Susquehanna River, within the limits of the city of Williamsport, Lycoming Co. Serial No. CIVENG-18-020-51-32. Plans deposit $5.

† D. C., Wash.—B.A. 6/20—Bureau Indiana Affairs, Dpt. Interior, Branch of Buildings & Utilities, Interior Bldg., Wash., Zone 25, D. C., elevated steel tank and tower.

BIDS ASKED—BUILDINGS

Md., Parkville—SCHOOL—B.A. 6/13—Baltimore Co. Bd. Educ., Aighburth Rd., Towson, 1 story, part bsmnt., brick, cinder block Villa Cresta Elementary School, $500,000. Plans deposit $50, Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, archt. CD 5/5/49 under Md., Towson.

▲ N. J., Trenton—HOUSING—B.A. 6/14—Trenton Housing Auth., 875 N. Willow St., housing, Melton and Oakland Sts. $2,000,000. Mickleswright & Mountford, 72 Ewing St., archts. CD 4/4.

† N. Y., Camp Smith (Br. Peekskill)—STORAGE, etc.—B.A. 6/15—National Guard Bureau, Acting U. S. Property & Disbursing Officer for New York, New York State Arsenal, 201 64 St., Brooklyn, Zone 21, altering 2 story ice house and storage bldg., at State Military Reservation. Plans deposit $10. CD 5/23.

† D. C., Wash.—POWER PLANT—B.A. 6/19—General Services Admin., Pub. Bldg. Serv., General Services Bldg., Wash., D. C., power plant remodeling at National Bureau of Standards, Plans deposit $7.50.

N. Y, New York—HOUSING—B.A. 6/19—New York City Housing Auth., 63 Park Row, Zone 38, general constr.; heating and ventilating; electrical work; plumbing and furnish and install elevators for Edenwald Houses, Proj. NY 5-19, in area bounded by Laconia Ave., Grenada Pl., E. 223 St., Baychester Ave., Schieffelin Ave., and E. 225 St., Bronx Boro. Plans deposit $75, $25 extra for elevators. CD 3/18/48.

Md., Baltimore—HOUSING—B.A. 6/21—City of Baltimore Housing Auth., 709 E. Eager St., Zone 2, eighty-four bldgs., 637 dwelling units, site improvs., install water distr. sys., and storm water sewers, Cherry Hill Homes Extension, Proj. MD 2-12. adv. ENR 6/7. CD 4/26/50.

N. J., Camden—ADMINISTRATION—B.A. 6/25—At office Joseph K. Costello, secy. Delaware River Joint Comm., Administration Bldg., Bridge Plaza, Contr. No. 11-A general constr.; Contr. No. 11-B, structural steel and iron work; Contr. No. 11-C, plumbing; Contr. No. 11-D, heating; Contr. No. 11-E, electrical work for construction of Administration Bldg Annex. Plans deposit $10; adv. ENR 6/7.

N. Y., Watertown—HOUSING—B.A. 6/26—Watertown Housing Auth., 36 Flower Bldg., Contr. 1, general constr.; Contr. 2, plumbing; Contr. 3, heating; Contr. 4, electrical work for 100 dwelling units, Proj. NY 10-1, along Eastern Blvd. Plans deposit $25; adv. ENR 6/7.

Pa., Bethayres—FACTORY, etc.—Bids Asked—Quaker City Gear Works, Inc., 1910 N. Front St., Phila., factory and office. $150,000. Joseph J. Rauch, 1231 Vine St., Phila., archt.

LOW BIDDERS—HEAVY CONSTRUCTION

Frank Mascali, 120 St., 31 Ave., Flushing, N. Y., Low Bidder, **$107,548,** United Nations Proj., Contr. 171, reconstructing portion park between E. 41 and E. 42 Sts., from Franklin D. Roosevelt Dr. to point approx. 75 ft. westerly thereof, reconstructing park adjacent to Franklin D. Roosevelt Dr. between E. 49 and E. 50 Sts., construct park adjacent to Franklin D. Roosevelt Dr. between E. 51 St. and point 100. 75 ft. northerly thereof, etc. NEW YORK, N. Y. President Manhattan Boro, Municipal Bldg., New York 7, N. Y. Bids May 8. CD 5/4.

South Jersey Constr Co., 207 Adams St., Riverside, N. J. Low Bidder. **$146,042.** Road paving, Briarwood Ave., etc., WESTMONT, N. J. Haddon Twp. Comn., Westmont, N. J. CD 4/27.

Kelly Paving Co., 1357 E. High St., Phila., Pa. Low Bidder. **$66,436.** Water mains, Algon Ave., etc. 498 WWI; **$164,399.** water mains, 77 St., etc., 530 WWI ==Ernest Ventresca, 5600 Bingham St., Phila., Pa., **$84,627,** water mains, Knorr St., etc., 509 WWI, PHILA., PA. Dpt. P. Wks., City Hall Annex, Phila., Pa. Bids May 15. CD 5/2.

LOW BIDDERS—BUILDINGS

Costanza Constr. Co., 622 Penn St., Camden, N. J. Low Bidder. **$445,890,** HOSPITAL addn., alterations, MOUNT HOLLY, N. J. Burlington County Hospital, Mount Holly, N. J. Bids May 15. CD 4/17.

McCloskey & Co., 1620 W. Thompson St., Phila., Pa. Low Bidder, **$674,000.** Minnie M. Kendrick SCHOOL, PHILA., PA. Bd. Educ., 21 and Winter Sts., Phila., Pa. Bids May 15. CD 4/27.

Di Sabatino & Raniere, Inc., 612 W. 9 St., Wilmington, Del. Low Bidder, **$95,000,** SHOP, NEWARK, DEL. Newark Bd. Educ., Newark, Del. Bids May 15. CD

CONTRACTS—HEAVY CONSTRUCTION

Kaufman Constr. Co., 4000 Pulaski Ave., Phila., Pa. Contract Awarded. $206,000. Frankford Elevated Railway Platforms, Bridge, Pratt-Margaret-Orthodox Sts., PHILA., PA. Dpt. City Transit, City Hall Annex, Phila., Pa. CD 10/30/44.

CONTRACTS—BUILDINGS

▲ Anthony P. Miller, Inc., 3333 Arctic Ave., Atlantic City, N. J. Contract Awarded, **$1,300,000,** PATIENTS BLDG., ATLANTIC CITY, N. J. Childrens Seashore Home Bd. Mgrs., Annapolis and Atlantic Aves., Atlantic City, N. J. Bids May 9. CD 4/30.

Mardin Constr. Co., 712 Federal St., Camden, N. J. Contract Awarded. $500,000, RESIDENTIAL DEVELOPMENT, Kenwood Ave., CAMDEN, N. J. Alden

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Development Co., 712 Federal St., Camden, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Ralph Griffin, Merchantville, N. J. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Chapel Ave., ELLISBURG, N. J. Dante D. Anastasio, 1815 Federal St., Camden, N. J., archts.

▲ **H. A. Williams, Inc.**, 437 N. 23 St., Allentown, Pa. Contract Awarded. $1,181,260. HOSPITAL addn., ALLENTOWN, PA. Allentown Hospital, 17 and Chew Sts., Allentown, Pa. Bids May 4. CD 4/27.

Mahoney Constr. Co., Ardmore, Pa. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Moreno and McClenaghans Mill Rd., BALA CYNWYD, PA.

▲ **Oliver Arnold Constr. Co.**, Widener Bldg., Phila., Pa. Separate Contracts. Approx. $3,800,000. RESIDENTIAL DEVELOPMENT, ENOLA, PA.

▲ **Ritter Bros.**, 1511 N. Cameron St., Harrisburg, Pa., Contract Awarded. $3,862,258, general constr. **Riggs-Distler Co., Inc.**, 1518 Walnut St., Phila., Pa., $796,000, heating***Smith-Hoopes, Inc.**, 4025 N. 6 St., Harrisburg, Pa., $793,126, plumbing, for construction 550-unit HOUSING, in area bounded by N. Sycamore, Nace, 14 St., and Cloverly Terrace, HARRISBURG, PA. Harrisburg Housing Auth., City Hall, Harrisburg, Pa. Bids May 2, awarded May 23. CD 5/7, under LB.

L. Feldsher & Son, 2534 W. Thompson St., Phila., Pa. Separate Contracts. Approx. $300,000. RESIDENTIAL DEVELOPMENT, Bryn Mawr Ave., PHILA., PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archt.

John J. Schroeffer, 3404 Tudor St., Phila., Pa. Contract Awarded. $300,000. RESIDENTIAL DEVELOPMENT, Cresson St., PHILA., PA. Integrity Improvement Corp., Western Saving Fund Bldg., Phila., Pa. Charles F. Schaef, 117 S. 17 St., Phila., Pa., archt. CD 5/18.

Mayer Pollock, Pottstown, Pa. Separate Contracts. $82,000. 1 story, 100x200 ft., structural steel, concrete block, FABRICATION and STORAGE bldg., POTTSTOWN, PA.

Fred K. Sinclair, Kennett Square, Pa. Contract Awarded. $300,000. RESIDENTIAL DEVELOPMENT, Valley View Terrace, KENNETT SQUARE, PA. John Dettori, Kennett Square, Pa.

▲ **Leimbach Constr. Corp.**, 3106 Hickory Ave., Baltimore, Md. Contract Awarded. $1,696,350. 2 story, part bsmnt., 92x92 ft., 112x120 ft., 64x119 ft. east wing, 74x312 ft. west wing North Point High SCHOOL on 20 acres, Wise and Merritt Aves., BALTIMORE, MD. Baltimore Co., Bd. Educ., Aighburth Rd., Towson, Md. Awarded May 23. CD 4/30, under LB.

▲ **J. Roland Dashiell & Sons, Inc.**, Salisbury, Md. Contract Awarded, $1,000,000, feed MILL and WAREHOUSE, LAUREL, DEL. Beacon Milling Co., Cayuga, N. Y. Paul Berg, 307 Dime Bank, Fort Wayne, Ind., engr.

Angelo Imperiale, Lancaster Pike, R. D. No. 1, Wilmington, Del. Separate Contracts. $300,000, RESIDENTIAL DEVELOPMENT, Imperial Dr., WILMINGTON, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Green Cove Springs**—B.A. 6/13—Dpt. Navy, Officer in Charge of Construction, P. O. Box 365, Naval Base, Charleston, S. C., bit. seal coat paving, various streets, in Green Cove Springs Naval Station and entire Naval Station Area, NOY 28276, Spec. 29930. Plans deposit $10.

† **Louisiana**—B.A. 6/13—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, approx. 2,300 lin. ft. standard board revetment bank of Red River, approx. 2 mi. north east of Armistead, Approx. Mile 225.5, Red River Parish, CIVENG 16-047-51-213. CD 6/26/46.

† **N. C., Charlotte**—B.A. 6/14—Dpt. Navy, Officer in Charge of Construction, P. O. Box 365, Charleston, S. C., extens., modifications water distr. at Naval Ammunition Depot, NOY 26167, Spec. 28265. Plans deposit $10.

La., New Orleans—B.A. 6/19—Sewerage Dist. 2, Jefferson Parish, 34 mi. lateral sewers, etc., S. V. Applewhite, 424 Millaudon St., engr. CD 5/3.

BIDS ASKED—BUILDINGS

Ga., Marietta—HOUSING—B.A. 6/14—Marietta Housing Auth., Marietta, Project GA 10-3, 125-housing units. Plans deposit $50. Bothwell & Nash, 206 Roswell St., archts. CD 11/21/49.

Ga., Atlanta — SHOPS — B.A. 6/18 — Cox Foundry & Machine Co., 985 Cox Ave. S.W., two shop bldgs. Plans deposit $25. David S. Cuttino & Assocs., Mortgage Guarantee Bldg., archts.

▲ **Ala., Birmingham**—HOUSING—B.A. 6/26—Birmingham Housing Auth., 600 N. 24 St., 500-unit housing, $4,000,000. Bid date changed. Chas. H. McCauley, Jackson Bldg., Birmingham, Ala., archts. CD 5/24.

SOON LETS CONTRACT—BUILDINGS

Fla., Tallahassee—PLANT—Capitol City Publishing Co., c/o Morton L. Pereira & Assoc., archts., 100 W. Monroe St., Chicago, Ill. Soon lets contract newspaper printing plant. Approx. $150,000.

LOW BIDDERS—HEAVY CONSTRUCTION

Harvey H. Stewart, 1200 S. Graham St., Charlotte, N. C. Low Bidder, $170,606, 222 ft. bridge over Levisa River at Vansant and hard surf. 0.27 mi. approaches, Routes 460 and 83, Buchanan Co.*** received no bids May 23, 386 ft. bridge over Nomini Creek and 0.55 mi. approaches, Secondary Route 621,

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MURRAY HILL 3-7499

Westmoreland Co.; 39 ft. bridge over Cat Point Creek and 1.89 mi. approaches, Secondary Route 623, Westmoreland and Richmond Counties, VIRGINIA. State Hy. Dpt., Richmond, Va. Bids May 23. CD 5/3.

Sam Finley, Inc., 1615 Cleveland Ave., Roanoke, Va., and **W. W. Tuck**, Virginia, Va. Low Bidder, **$252,305**, hard surf. and a 130 ft. bridge over Beaver Dam Creek 3.25 mi. at State Farm, Route 6, Goochland Co.***A. B Burton**, Lynchburg, Va., **$290,575**, grading, drainage 4.25 mi., c. conc. 0.78 mi. Alt. U. S. 58, west of Danville, Pittsylvania Co.***W. E. Graham**, Cleveland, N. C., **$483,159**, c. conc. 0.43 mi. and macad. surf. 0.18 mi. U. S. 29 from Danville to North Carolina State line, connecting with work under way in North Carolina, Pittsylvania Co.***J.R. Ford Co.**, Lynchburg, Va., **$67,489**, hard surf. 3.18 mi. Secondary Routes 644 and 545 from north of Volens to near Nathalie, Halifax Co.

C. M. Moyer, Staunton, Va., **$179,897**, reconstruction and hard surf. 8.1 mi. Secondary Route 643 near Amherst to Hicks, Amherst Co.***McAmis Bros.**, North Tazewell, Va., **$115,948**, hard surf. 4.4 mi. Secondary Route 652, near Tom's Creek to Dickenson Co. line, Wise Co.***Thompson-Arthur**, Danville, Va., **$106,752**, reconstruction and hard surf. 8.14 mi. Secondary Routes 6161, 612 and 644 from east of Ordsburg to north of Charlie Hope, Brunswick Co.*** received no bids May 23, reconstruction and hard surf. 1.39 mi. Secondary Route 606 from Jeffs to Poquoson, York Co.; reconstruction and hard surf. 4.91 mi. Secondary Route 605 near Widner Valley School, Washington Co., VIRGINIA. State Hy. Dpt., Richmond, Va. Bids May 23. CD 5/3.

▲† Groves, Lundin & Cox, 310 Wesley Temple Bldg., Minneapolis, Minn. Low Bidder, **$2,833,767**, excavation forebay, tunnels, tailrace, saddle dikes 1 and 2 access road for Buford Dam, GEORGIA U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids May 22.

Shely Constr. Co., 809 Manchester St., Lexington, Ky. Low Bidder, **$141,000**. Sanitary sewerage sys. addn., ELIZABETHTOWN, KY. City, Elizabethtown, Ky. Bids May 22. CD 5/9.

R. B. Tyler Constr. Co., 1446 Levering St., Louisville, Ky. Low Bidder, **$183,000**. Paving, grading, 4,000 ft. air strip at airport, LONDON, KY. Airport, London, Ky. J. Stephen Watkins, 251 High St., Lexington, Ky., engr. Bids May 22.

J. W. Owen, Inc., 2900 Chelsea St., Memphis, Tenn. Low Bidder, **$106,760**, est. $125,000. imprv. Warford St., from Jackson to Chelsea Sts., MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Wm. Fowler, city engr.

LOW BIDDERS—BUILDINGS

Carroll Daniel Constr. Co., Gainesville, Ga. Low Bidder, **$82,000**, PRINTING SHOP, ATHENS, GA. University of Georgia, Athens, Ga. Bids May 22. CD 5/7.

Murphey Pound Constr. Co., Hill Bldg., Columbus, Ga. Low Bidder, **$300,000**, Catholic elementary SCHOOL, COLUMBUS, GA. Church of Holy Family, 312 12 St., Columbus, Ga.

North Alabama Electric Co-operative, Stevenson, Ala., rejected bids May 15, WAREHOUSE and OFFICE, STEVENSON, ALA. CD 5/21., under LB.

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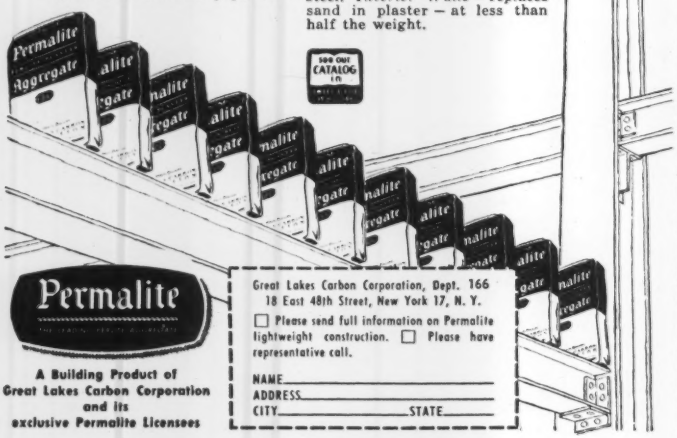

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CONTRACTS—HEAVY CONSTRUCTION

† Cunningham Core Drilling & Grouting Co., c/o owner, Contract Awarded, **$48,085**, foundation explorations Hartwell Dam, Savannah River, Hartwell, CIVENG 09-133-51-91, GEORGIA. Bids May 15. CD 5/3.

W. L. Wells Co., 524 Mitchell Ave., Jackson, Miss. Contract Awarded. **$94,958**, est. $85,000. bridge 0.054 mi. U. S. Hy. 80 through Newton, F. A. Grade Crossing Proj. 004-2 (6), Contr. II, Newton Co., MISSISSIPPI. State Hy. Comn., Jackson, Miss. Bids May 22, awarded May 23. CD 5/14.

▲† Edward E. Moore Co., P. O. Box 4327, Fondreu Station, Jackson, Miss. Contract Awarded. **$1,804,245**. Gums Crossing and Grayport Crossing in Grenada Reservoir area, Inv. S1-164, Yalobusha and Grenada Counties, MISSISSIPPI. U. S. Eng., P. O. Box 60, Vicksburg, Miss. Awarded May 22. CD 5/24.

Blount Bros. Constr. Co., Tuskogee, Ala., Contract Awarded, **$74,018**, est. $80,000, incidental grading base preparation, bit. surf. 8.87 mi. Miss Hy. 12 between Mileston and Belzoni, F. A. Secondary Proj. S 252 (6), Humphrey and Holmes Counties***Entrican Hauling Constr. Co.**, Brookhaven, Miss., **$74,929**. est. $80,000. grading, culverts 5.033 mi. Miss Hy. 550 between Caseyville and Brookhaven, F. A. Secondary Proj. S 227 (3), Lincoln Co.***Harbert & Cargile**, Monroe Park, Mobile, Ala. **$91,679**, est. $110,000. surf. tr. 9.604 mi. Miss. Hy. 26 at Lucedale-West and Miss. Hy. 63 between Lucedale and Leaksville, F. A. Proj. F 282 and F. A. Secondary Proj. S 71 (3), George Co.

King Constr. Co., Taylorsville, Miss., **$181,328**, est. $195,000, grading, box bridge, grav. surf. 5.557 mi. Miss Hy. 30 between New Albany and Pleasant Ridge, F. A. Proj. F 044-1 (1), Union Co.***Phillips Concrete Products Co.**, Columbus, Miss., **$83,510**, est. $85,000, grading, bridge surf. tr. 4.225 mi. Miss. Hy. 21 between Gholson and Shuqualak, F. A. Proj. S 308 (2), Noxubee Co.; **$180,834**, est. $185,000, bit. surf. tr. 4.777 mi. U. S. Hy. 45 between Nettleton and Aberdeen, F. A. Proj. F 154 (..), ...onroe Co., MISSISSIPPI. State Hy. Comn., Jackson, Miss. Grand total $686,297. Bids May 22, awarded May 23. CD 5/14.

† Jahncke Service, Inc., 814 Howard Ave., New Orleans, La. Contract Awarded. **$546,000**. approx. 1,050,000 cu. yd. hydraulic fill levee enlargement Inv. 51-172, Jefferson Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans 9, La. CD 4/19, under LB.

† Price, Osborne, Usborne & Melson Co., Lynchburg, Va., Contract Awarded. **$276,000**. clearing Elk River Reservoir, TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. Bids May 1. CD 5/16, under CA.

F. D. Harvey, Falls Bldg., Memphis, Tenn. Contract Awarded. **$79,683**, est. $75,000. laying sewers, Harrison Creek, east of National Cemetery; **$182,281**, est. $200,000, White Station sewers, laying, etc. MEMPHIS, TENN. City, City Hall, Memphis, Tenn. Wm. Fowler, city engr. Bids May 23.

CONTRACTS—BUILDINGS

F. L. Showalter, Inc., Lynchburg, Va., Contract Awarded. Approx. **$85,000**. PLANT addn., LYNCHBURG, VA. Virginia Gear & Machine Co., Lynchburg, Va.

Graham Bros., Southern States Bldg., Richmond, Va. Contract Awarded, **$946,000**, consolidated HIGH SCHOOL and AGRICULTURAL BLDG., ORANGE, VA. Orange Co. School Bd., Orange, Va. Bids May 10. CD 5/17, under LB.

▲ Peachtree Plaza Apartments, 381½ Whitehall St., Atlanta, Ga. Owner Builds, **$1,960,000**, 124 APARTMENT UNITS, ATLANTA, GA.

▲ W. A. McWaters, 2 Clayton St., Montgomery, Ala., Contract Awarded, **$1,302,770**, 145-unit housing, DECATUR, ALA. Decatur Housing Auth., Decatur, Ala. Bids May 8. CD 5/15, under LB.

† Beckman & Word Constr. Co., Box 7, Station 7, Fort Smith, Ark. Contract Awarded. **$174,632**. machine SHOP at Louisiana Ordnance Plant Inv. 51-28, MINDEN, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids May 19. CD 5/9.

J. A. Bragg, Ashland, Ky. Contract Awarded. **$676,950**. Kings Daughter's HOSPITAL addn., ASHLAND, KY. Kings Daughters Hospital, Ashland, Ky. Bids Apr. 17, awarded May 3. CD 3/29.

MIDDLE WEST

SOON LETS CONTRACT—BUILDINGS

O., Cincinnati — MONASTERY — Dominican Nuns, 1950 Madison Rd., soon lets contract 253x191x119 ft., irregular shape, brick, cut stone, steel monastery, chapel. $400,000-$500,000. Hixon, Tarter & Assoc., 519 Main St., engrs. Albert Y. Walters. Federal Reserve Bank Bldg., 4 and Race Sts., archt. CD 5/24.

O., Portsmouth—HIGH SCHOOL—Central Catholic School Bldg. Comm., Holy Redeemer Church, c/o DeVoss & Donaldson, archts. Natl. Bank Bldg., soon lets contract 2 story, bsmnt., 82x208 ft., brick, concrete high school, gymnasium and auditorium. $400,000. CD 5/24.

LOW BIDDERS—HEAVY CONSTRUCTION

Brooks Constr. Co., 1240 Barthold St., Fort Wayne, Ind., Low Bidder, **$110,958**, est. $126,052. bit. resurf. 15.273 mi. State Rd. 52 from north of Lebanon to Tippacanoe-Clinton Co. Line, Contr. RS 3346, Boone, Clinton and Tippacanoe Counties; **$357,797**, est. $409,892. widn. bit. resurf. 12.85 mi. State Rd. 52 from State Rd. 3 to below State Rd. 244 at Andersonville, Contr. RS 3536, Rush and Franklin Counties***Grace Constr. & Supply Co.**, Lincoln Tower, Fort Wayne, Ind., **$95,790**, bit.

resurf. 2.19 mi. State Rds. 32, 9, 35 and 3, Contr. RS 3348, Madison and Delaware Counties***McMahon Constr. Co., Rochester, Ind., $235,932. est. $241,932. bit. resurf. 7.66 mi. State Rd. 43 (U.S. 421) from State Rd. 14 to Pulaski-Starke Co. line, Contr. RS 3344, Pulaski Co.***Middle West Rlads Co., Noblesville, Ind., $93,504. bit. resurf. 6.13 mi. State Rd 67 from Spencer to State Rd. 43, Contr. RS 3347, Owen Co.***Ralph Rogers & Co., Inc., Bloomington, Ind., $527,790. conc. bit. resurf. 15.57 mi. State Rd. 445 and State Rd. 45 from State Rd. 445 jct. with State Rd. 54 to Bloomington, Contr. 3357, Greene and Monroe Counties; $504,725. est. $509,031. wid'n. bit. resurf. 20.17 mi. State Rd. 37 Bedford to Bloomington, Contr. RS 3349, Lawrence and Monroe Counties, INDIANA. State Hy. Comn., State House Annex, Indianapolis, 4, Ind. Bids May 22. CD 5/10.

† **Simpson Constr. Co.**, 113 S. Hermitage St., Chicago, Ill. Low Bidder. $123,584. pumping plant for flood protection, ROSICLARE, ILL. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids May 22. CD 5/16.

Arrow Petroleum Co., 7419 Franklin St., Forest Park, Ill. Low Bidder. $173,998. resurf. airport exten., near WHEATON, ILL. Du Page Co., Wheaton, Ill. (Correction—location of project). CD 5/25, under Ill.; St. Charles, LB.

LOW BIDDERS—BUILDINGS

▲ **Wood River Refining Co.**, 335 W. Lewis St., Wichita, Kan., will not construct catalytic cracking oil refinery, GARY, IND. Project abandoned. Est. $7,000,000. CD 5/3.

Marshwood Co., 132 N. Main St., Oconomowoc, Wis., will not construct bakery. Project abandoned, OCONOMOWOC, WIS. CD 3/14.

CONTRACTS—HEAVY CONSTRUCTION

† **Joseph Skilken & Co.**, 44 E. Broad St., Columbus, O. Contract Awarded. $500,000. 8 story, bsmnt., concrete, brick masonry wing squadron Operations bldg., LOCKBOURNE, O. U. S. Eng., 8 St. W., Huntington, W. Va. Bids May 18.

† **Fordice Constr. Co.**, Porter Bldg., Memphis, Tenn. Contract Awarded, $93,500, Parcel I only, minor repairs to concrete asphalt, riprap and other types of revetment paving on banks of Ohio and Mississippi Rivers, Serial No. CIVENG 40-041-51-116, ILLINOIS and ARKANSAS. U. S. Eng., P. O. Box 97, Memphis, 1, Tenn. Bids May 2. CD 4/2.

Schneider-Borchert Co., 606 W. Wisconsin Ave., Milwaukee, Wis. Contract Awarded. $71,837. paving 35 St. viaduct; White Constr. Co., 2543 W. Greves St., Milwaukee 3, Wis., $118,600. paving West Roosevelt Dr., MILWAUKEE, WIS. City, Milwaukee, Wis. Bids May 18, awarded May 21.

CONTRACTS—BUILDINGS

▲ **Bauer Bros. Constr. & Supply Co.**, 424 Lebanon Ave., Belleville, Ill. Contract Awarded. $5,000,000. 7 story, brick, rein.-con., steel, stone, X-shaped HOSPITAL addn. and Old Folks HOME, BELLEVILLE, ILL. St. Elizabeth's Hospital, 1318 N. 6 St., Belleville, Ill., c/c Hospital, Sisters of the Third Order of St. Francis, Sister Magalene, mother superior, Sangamon Ave. Rd., Springfield, Ill. Henry R. Slaby, 2750 N. Teutonia Ave., Milwaukee, Wis., archt. CD 8/8/49.

Bauer Bros. Constr. & Supply Co., 424 Lebanon Ave., Belleville, Ill. Contract Awarded. Approx. $100,000. 2 story, 40x115 ft., rein.-con., brick, steel boiler HOUSE and LAUNDRY for hospital, GRANITE CITY, ILL. St. Elizabeth Hospital, 2100 Madison St., Granite City, Ill., Maguolo & Quick, 4908 Delmbar Blvd., St. Louis, 9, Mo., archts.

† **Coath & Goss, Inc.**, 5103 W. Lake St., Chicago 51, Ill. Contract Awarded. $631,000. principal POWER PLANT, GREAT LAKES, ILL. Dpt. Navy; Great Lakes Naval Training Station, Great Lakes, Ill.

Freevol-Smidberg Co., 5807 W. Chicago Ave., Chicago 51, Ill. Contract Awarded. $200,000. PLANT addn., MORTON GROVE, ILL. Baxter Laboratories, 6301 Lincoln St., Morton Grove, Ill. Friedman Alschuler & Sincere, 223 Jackson St., Chicago 6, Ill., archts.

Jos. E. Noll Constr. Co., 1826 Prairie St., Glenview, Ill. Contract Awarded. $100,000. FACTORY and OFFICE, NORTHFIELD, ILL. Central Products Co., 214 W. Ohio St., Chicago, Ill. Ivan R. Peterson, 2111 Dewes St., Glenview, Ill., archt. Awarded May 14.

Peter Ploskee, R 4, 217 Lake Shore Dr., Kenosha, Wis. Contract Awarded. $450,000. 3 story, 47x113 ft. HOSPITAL addn., KENOSHA, WIS. Sisters of St. Dominic, 3566 7 Ave., Kenosha, Wis. E. Brielmaier & Sons Co., 735 N. Water St., Milwaukee 2, Wis., archts. CD 5/27/46.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Missouri**—B.A. 6/14—Fish & Wildlife Service, Dpt. Interior, 1006 W. Lake St., Minneapolis, Minn., rein.-con. spillway structure at Mingo National Wildlife Refuge, near Puxico.

N. M., Lovington—FAIR BLDG.—B.A. 6/14—Lea County Fair Bd., Lovington, 1 story concrete tile or concrete slab air bldg. $100,000. Plans deposit $25. George R. Graves, 1008 N. Broadway, Hobbs, archt.

† **Texas**—B.A. 6/14—U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, clearing floodway and excavation channel of Trinity River within city limits (West Fork area). Part 2 project, Tarrant Co., Inv. No. CIVENG 41-443-51-60. $375,000. CD 6/9/44.

† **Minnesota**—B.A. About 6/21—U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul, Zone 1, bluff protection at Locks and Dam 1, Mississippi River, downstream from Ford Road Hy. Bridge in Minneapolis, CIVENG 21-018-51-69. CD 6/9/44.

BIDS ASKED—BUILDINGS

Tex., Ozona—SCHOOL—B.A. 6/14—Ozona School Dist., Ozona masonry school addns. $350,000. Wyatt C.

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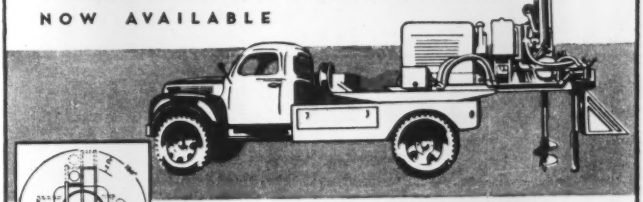

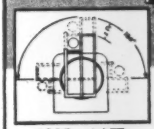

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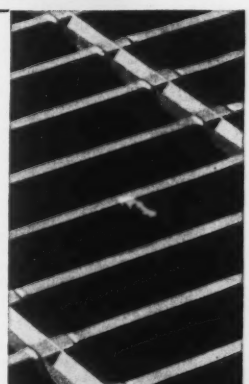

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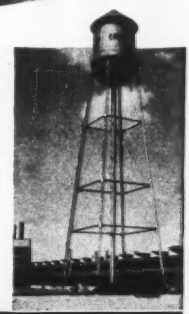

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Hedrick, 1st. Natl. Bank Bldg., Fort Worth, archt. CD 2/2.

Tex., Amarillo—STORAGE—Bids Asked—Southwestern Service Co., 420 Polk St., maintenance and storage. $154,260. CD 5/18.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Tex., Pasadena—BRINE PIPE LINE—Texas Brine Corp., 2502 Fannin St., Houston, soon lets contract 8 in. screw joint brine pipe line from Pierce Junction to Pasadena city limits. $100,000. Lockwood & Andrews, Union Natl. Bank Bldg., Houston, engrs.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., San Antonio**—MERCANTILE—Joskes of Texas, Alamo Plaza, soon lets contract 4 story bsmnt., mercantile. $2,000,000. W. E. Simpson Co., 945 Milam Bldg., engr. Bartlett Cocke, 3501 Broadway, archt. CD 5/8.

LOW BIDDERS—HEAVY CONSTRUCTION

† **U. S. Eng.**, 1709 Jackson St., Omaha, Neb. Cancelled bids to have been opened about June 8, runway constr. at Wold Chamberlain Air Force Base, Inv. E and G 27 (SP), MINNEAPOLIS, MINN. CD 5/16.

Chatham-Walker, West Plains, Mo. Low Bidder. $505,000. 142.59 mi. rural distr. lines, 45.19 mi. line changes in Jasper, McDonald, and Newton Counties, Proj. Mo. 48N Newton, MISSOURI. New Mac Electric Co-operative, Neosho, Mo. Bids May 16. CD 5/9.

Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb. Low Bidder. $438,000. c. conc. pavement, culverts on Railroad Ave. and 24 St., FA-U-497 (1), Omaha City, NEBRASKA. State Dpt. Roads & Irrigation, Lincoln, Neb. Bids May 22. CD 5/1.

† **U. S. Eng.**, 601 Davidson Bldg., Kansas City, Mo. Cancelled bids to have been opened May 24, levee and appurtenances, Sect. II, North Kansas City Unit, Kansas Cities Flood Control Proj.; CIVENG 23-028-51-75, KANSAS. CD 4/18.

R. N. Adams Co., P. O. Box 376, Kaufman, Tex. Low Bidder. $113,722. Grading, structures, base and surf. 11.04 mi. Hy. FM 1446 and 1492, Proj. V1160-2-1, Ellis Co., TEXAS. State Hy. Comn., Austin, Tex. Bids May 16. CD 5/1.

† **George H. Storey**, Box 660, Alpine, Tex. Low Bidder. $116,785, est. $90,000. UTILITY BLDG., POWER HOUSE, No. 33-48, MARATHON, TEX., National Park Service, Dpt. Interior, Region 3, Santa Fe, N. M. Bids May 8. CD 4/20.

Henry Shore, Littleton, Colo. Low Bidder. $206,308. Oil precessed surf. and seal coating 60.234 mi. Combined Colo. Projs. S-0144 (10) S-0121 (11), S-0144 (9), S-0121 (10), F 005-2 (7) Rangeley & Meeker, Yampa-Topunas Oak Creek-Yampa, Rio Blanco and Routt Counties, COLORADO. State Hy. Dpt., 518 State Office Bldg., Denver, Colo. Bids May 15.

CONTRACTS—HEAVY CONSTRUCTION

† **Pioneer Contg. Co., Inc.**, 453 Plum Ave., Memphis, Tenn. Contract Awarded. $278,000. New levee and ditch excav. approx. 1,122,000 cu. yd. vicinity of Lake City, Craighead Co. Serial No. CIVENG 40-041-51-119, ARKANSAS. U. S. Eng., P. O. Box 97, Memphis, Tenn. Bids May 9. CD 4/12.

C. A. Wagner Constr. Co., 230 E. 9 St., Sioux Falls, S. D. Contract Awarded. $66,617. Granding 1.789 mi. Proj. ER-14 and State Work, Brown Co., SOUTH DAKOTA. State Hy. Comn., Pierre, S. D. Bids May 10. CD 4/27.

H. H. Carrothers Constr. Co., Paola, Kan. Contract Awarded. $285,300. WW improv., exten., modernization plant on Bull Creek, PAOLA, KAN. City, Paola, Kan.

▲† **Nilson-Smith Constr. Co.**, 812 2 St S., Great Falls, Mont., **Kiley Constr. Co.**, Rapid City, S. D. and **Northwest Engineering Co.**, Butte, Mont. Contract Awarded. $2,322,337, est. $3,704,898. Airfield pavement at Air Force Base, Inv. Eng. 51-3, GREAT FALLS, MONT. U. S. Eng., 19 E Poplar St., Walla Walla, Wash. CD 5/22 under LB.

CONTRACTS—BUILDINGS

E. A. Brunson Constr. Co., 4052 Forest Park Blvd., St. Louis 8, Mo. Contract Awarded. 2 story, brick, concrete, steel SCHOOL 7 and Madison Sts., ST. CHARLES, MO. Immanuel Evangelical Lutheran Church, St. Charles, Mo. Bids May 1. CD 4/25.

† **Gamble Constr. Co.**, 804 Pine St., St. Louis 1, Mo. Contract Awarded. $300,000. Alternating 3, 5, 7, and 8 floors of St. Louis MEDICAL DEPOT, 12 and Spruce Sts., ST. LOUIS, MO. Army Dpt., U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Jamieson & Spearl, 1696 Arcade Bldg., 812 Olive St., St. Louis 1, Mo., archts. Bids Apr. 17.

Harry J. Pohrer, 728 Dallas Dr., Lemay, St. Louis 23, Mo. Owner Builds. 1 story 77x177 ft., brick, concrete blocks FACTORY, 2737 Wyandotte St., ST. LOUIS, MO. Theo. C. Brinkman, 4239A Dewery Ave., St. Louis 16, Mo., archt.

FAR WEST

BIDS ASKED—BUILDINGS

Calif., Bakersfield—SCHOOL—B.A. 6/14—City School Dist., 1611 "K" St., Junior High School, Belle Terrace and "P" Sts. $750,000. E. L. McCoy, Hay Bldg., Bakersfield, archts. CD 2/2.

▲† **Nev., Las Vegas**—BUILDINGS—B.A. 6/22—U. S. Atomic Energy Comn., Los Alamos, N. M., misc. bldgs. alternate test site, Inv. No. 291-51-139. $1,000,000-$2,500,000. Plans deposit $50.

▲ **Calif., Los Angeles**—MEDICAL CENTER—B.A. 6/28—Bd. Regents, University of California, 45 Hilgard Ave., medical center, $15,500,000. Revised bid date.

Wilton Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, archts. CD 5/15.

SOON LETS CONTRACT—BUILDINGS

Calif., San Francisco—SALES and SERVICE—Boas Motor Co., 3800 Geary Blvd., soon lets contract, Class C Bldg., rein.-con. auto sales and service. Hertzka & Knowles, 85 Post St., archts. CD 12/14/50.

LOW BIDDERS—HEAVY CONSTRUCTION

Tanner, Heuser & Garnett Constr., 731 N. 19 Ave., Phoenix, Ariz. Low Bidder, **$89,789**, est. $104,982 c. conc. sidewalks, curbs, bit. surf., new subdivision PHOENIX, ARIZ. Womack Improvement Dist., Courthouse, Phoenix, Ariz.

† **Bumstead-Woolford Co.**, Smith Tower, Seattle, 4, Wash., Low Bidder, **$563,380**, rehabilitate steam PLANT in 300 area at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C. CD 4/27.

Bd. Supervs. Alameda Co. Court House, Oakland, Calif., rejected bids, road imprvs. Castro Valley to William St., OAKLAND, CALIF. CD 5/25.

LOW BIDDERS—BUILDINGS

Elmer J. Freethy, 1432 Kearny St., San Francisco, Calif. Low Bidder, **$573,339**, gymnasium and other addns. to Garfield Junior High SCHOOL, BERKELEY, CALIF. Bd. Educ., Administration Bldg., Rose and Walnut Sts., Berkeley, Calif. Bids May 17. CD 4/27.

M. R. Crane, 180 Santa Anna Ave., San Francisco, Calif. Low Bidder, **$332,880**, elementary SCHOOL, CLOVERDALE, CALIF. Cloverdale Unified Elementary School Dist., Cloverdale, Calif. Bids May 17. CD 4/27.

City School Dist., 719 "F" St., San Bernardino, Calif. cancelled bids to have been opened June 5, Highland Junior High SCHOOL addns., SAN BERNARDINO, CALIF. CD 5/22.

Gordon Fields, 124 S. "G" St., San Bernardino, Calif. Low Bidder, **$447,900**, Murcoy Junior High SCHOOL, SAN BERNARDINO CALIF. City School Dist., 799 F St., San Bernardino, Calif. Bids May 18. CD 5/4.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Gibbons & Reed Co.**, 695 W. 9 St. N., Salt Lake City, Utah. Contract Awarded. **$1,021,922**, est. $1,389,116 earthwork, structures for Yuma Levee, Lower Colorado River Dist., Colorado River Front Work and Levee System, Proj., Spec. DC-3369, ARIZONA Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids May 1, awarded May 21. CD 5/8, under LB.

† **Fisher Constr. Co.**, Box 4035, Phoenix, Ariz. Contract Awarded, **$309,487**, constr. NW-SE runway exten. at Luke Air Force Base, PHOENIX, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 18.

† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho. Contract Awarded, total est. **$50,000,000** excavating 1,000,000 yd. for aluminum plant, WENATCHEE, WASH. Aluminum Co. of America, 2156 Gulf Bldg., Pittsburgh, 19, Pa. CD 1/12, under Industrial Buildings.

▲† **The Four Companies, Inc.**, San Francisco, Calif. (joint venture of Barrett & Hilp, 918 Harrison St., Macco Corp., Guadalupe Valley, Brisbane; Theo G. Meyer & Sons, Quint and Custer Sts.; Chas. L. Harney Inc., 575 Berry St., all San Francisco, Calif.) Contract Awarded. Total est. **$33,058,000**, barracks, mess halls and installing utilities of Air Force Indoctrination Center, Camp Parks, PLEASANTON, CALIF. U.S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded May 22.

Chas. Burch, 2419 N. Chico St., El Monte, Calif. Contract Awarded, **$149,940**, sanitary sewers in LID 23 WALNUT CREEK, CALIF. Central Contra Costa Sanitary Dist., 1822 Mt. Diablo Blvd., Walnut Creek, Calif. Bids May 1, awarded May 18.

CONTRACTS—BUILDINGS

▲† **McPhail Eng. Co.**, 2904 Alaska St., Tacoma, Wash., Contract Awarded. **$1,666,068**, Schedules 2 and 3; **Waale-Camplan Co.**, 2100 S.W. Jefferson St., Portland, Ore., **$73,999**, Schedule 1, BLDGS. and utilities at Army Proj. Inv. No. 51-148, NORTH RICHLAND, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Apr. 24. CD 4/30, under LB.

Kieckhefer Container Co., 1715 W. Canal St., Milwaukee, Wis. Day Labor, **$85,000**, 1 story, 250x361 ft., rein.-con. FACTORY, UNION GAP, WASH. LeFebvre & Wiggins, 6408 N. Richards St., Milwaukee, Wis., archts.

Central State Constr. Co., 593 Market St., San Francisco, Calif. Contract Awarded, **$310,882**, new Meadow Homes SCHOOL, Detroit Ave., near here, CONCORD, CALIF. Mount Diablo Unified School Dist., High School Bldg., Concord, Calif. Bids Apr. 10, awarded May 18. CD 3/29.

Myers Bros., 3407 San Fernando Rd., Los Angeles, Calif., Contract Awarded. **$713,861**, SCHOOL of DENTISTRY CLINIC Bldg., LOS ANGELES, CALIF. University of Southern California, 3551 University Ave., Los Angeles, Calif. Bids Feb. 23. CD 3/6, under LB.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

† **Pacific Constr. Co.**, Vancouver, Wash. Low Bidder, $775,000, est. $634,548, 2 battalion headquarters and supply bldgs. at Ladd Air Force Base, one battalion headquarter and supply bldg. at Eielson Air Force Base, Inv. No. 595-507-51-111, ALASKA, U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska. Bids May 22. CD 5/10.

▲† **S. Birch & Sons and J. C. Boespflug Constr. Co.**, Central Bldg., Seattle 4, Wash. Low Bidder, $2,415,875, est. $2,023,342, 2 organizational mainte-

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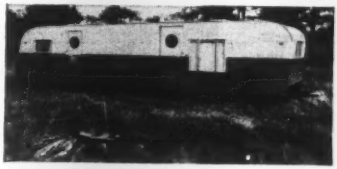

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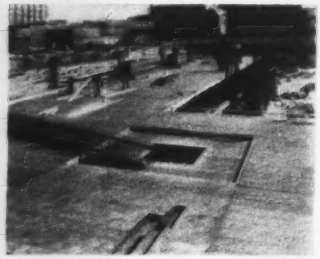

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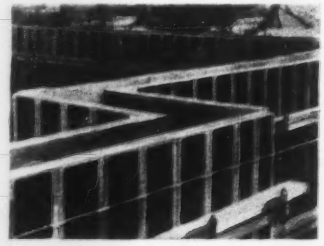

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nance ships at Ladd Air Force Base and 2 at Elelson Air Force Base, inv. No. 595-507-51-82, ALASKA. U. S. Eng., New Washington Hotel, Seattle 2, Wash. Bids May 23. CD 4/27.

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▲† The Alaska Railroad, Dpt. Interior, Anchorage, Alaska, rejected bids May 21, POWER and HEATING PLANT, ANCHORAGE, ALASKA. L. B. $4,177,717. CD 5/28, under LB.

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▲† A. J. Hopper Co., 2nd and Cherry Bldg., Seattle 4, Wash. Contract Awarded, $3,424,931, regrading, grav. surf., 57.6 mi., Richardson Hy., Sect. C, ALASKA. Alaska Road Comm., Juneau, Alaska. Bids Apr. 19. CD 4/26, under LB.

CONTRACTS—BUILDINGS

† J. H. Pomeroy Co., Inc., 333 Montgomery St., San Francisco, Calif. Contract Awarded, $919,023, est. $627,667, field maintenance shop, ordnance, inv. No. 595-507-51-90, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 26. CD 5/2, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Man., Churchill—B.A. 6/12—D. W. Laird, engr., Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man., rebuilding 9 miles road, installing culverts and erecting prefabricated bldgs. at Mile 467 Hudson Bay Railway. Approx. $70,000.

Alberta—B.A. 6/15—E. Russell, engr., Water Resources Branch, Edmonton, concrete and timber chute, 800 ft. long, 11,000 cu. yd., common excavation, 123,000 lb. reinforcing steel, 26,000 fbm untreated timber, 1,100 sq. ft. steel sheet piling, at Raymond, for Province of Alberta, Edmonton, Alta. Plans deposit $10. CD 12/3/43.

BIDS ASKED—BUILDINGS

Que., Montreal—PLANT—Bids Asked—Luke & Little, archts., 2515 Crescent St., 1 story, 209x225 ft., rein.-con., structural steel, brick plant, Pare St., for MacArthur Chemical Co. Ltd., 20 W. St. Paul St., Montreal. Approx. $150,000.

LOW BIDDERS—HEAVY CONSTRUCTION

Dawson, Wade & Co. Ltd., 775 Clark Dr., Vancouver, B. C., Low Bidder, $628,724, reconstr. 7.23 mi., Trans-Canada Hy., Golden-Yoho National Park Boundary, BRITISH COLUMBIA. Province of B. C., Parliament Bldgs., Victoria, B. C. Bids May 22. CD 5/21.

CONTRACTS—HEAVY CONSTRUCTION

▲ Continental Constr. Ltd., and Evans Constr. Co. Ltd., Lethbridge, Alta. Contract Awarded, Joint Bid, $698,008, grading 31 mi. Trans-Canada Hy. from Suffield to Dunmore***W. C. Wells Constr. Co., Calgary, $277,429, grav. base and asph. 15.2 mi. hy. Cardston and Carway***R. H. Smith, Rimbey, Alta., grading 20.02 mi. hy. Perryvale and Athabasca*** Mannix-O'Sullivan Ltd., Edmonton, Alta., $360,353 grading 20 mi. stretch hy. House River to Valleyview ***Standard Gravel & Surfacing Co., Calgary, Alta., $206,259, grading 17 mi. hy. Pembina River to Clyde Corner, ALBERTA. Province of Alberta, Parliament Bldgs., Edmonton, Alta. Grand total $1,742,720. Awarded May 21. CD 12/1/43.

Commonwealth Constr. Co. Ltd., 300 Royal Bank Bldg., Winnipeg, Man. Contract Awarded, $337,762, surf., 13.2 mi. from Virden to Reaper, MANITOBA. Province of Manitoba, Winnipeg, Man. Bids May 18. CD 5/14.

Brandt Constr. Co., Steinbach, Man. Contract Awarded, $67,642, grading 10 mi. in municipalities of Brokenhead and St. Clements, MANITOBA. Province of Manitoba, Winnipeg, Man. CD 11/8/43.

Wallaceburg Water Comm., Wallaceburg, Ont., Own Forces. Approx. $50,000, 1 mi. g. reservoir, distr. sys. in pavement, etc. WALLACEBURG, ONT. CD 4/26.

P. Scadere, Ltd., 7402 Montee St. Michel St., Montreal, Que. Contract Awarded, $57,424, water mains, ST. MICHEL, QUE., Municipality, St. Michel, Que. J. N. Langelier, 10 St. James St., Montreal, Que., engr.

James Accurso Ltd., 10150 St. Lawrence St., Montreal, Que. Contract Awarded, $79,000, sewers, ST. MICHEL, QUE., Municipality, St. Michel, Que. J. N. Langelier, 10 St. James St. W., Montreal, engr.

CONTRACTS—BUILDINGS

Herroux & Robert Ltd., 1414 Crescent St., Montreal, Que. Contract Awarded, Approx. $400,000, concrete, stone, parish CHURCH, HULL, QUE. Parish of St. Joseph, Hull, Que. L. Sarra-Bournet, Hotel de Ville, Hull, Que., archt.

W. Lalonde, Rigaud, Que. Contract Awarded, Approx. $350,000, COLLEGE extens., RIGAUD, QUE. Reverend Fathers of St. Viateur, 1145 St. Viateur Ave., Montreal, Que. J. M. Lafleur, 72 St. Cecele St., Valleyfield, Que., archt.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Redwood City—City, City Hall, voted $500,000 bonds, water sys. imprvs. CD 4/13.

▲ **Calif., San Diego**—City, Civic Center Bldg., voted $2,000,000 bonds, replacing deteriorated water lines, rebuilding two basins, cement lining of pipe and pumping plant. G. E. Arnold, city water dir. CD 3/15.
Calif., Watsonville—City, City Hall, voted $150,000 bonds, water sys. imprvs., incl. tanks, pumps, pipe lines etc. R. E. Fowler, city engr. CD 4/27.
Fla., Lake Placid—Town, expansion water supply and exten. distr. system $100,000, Briley, Wild & Assocs., P.O. Box 3052, Daytona Beach, consult. engrs.
Fla., Miami Beach—City c/o City clk., bond election June 5, WW imprvs. $650,000.
Fla., Perry—Town, expansion water treatment plant, $100,000. Briley, Wild & Assocs., P.O. Box 3052, Daytona Beach, consult. engrs.
N. C., Roxboro—Town, Mayor Richard Long, bond election June 16, water plant, etc. $350,000. Platt & Davis, Durham, consult. engrs. CD 3/3/47.
Tex., Robstown—Violet Fresh Water Dist., Robstown, voted bonds, piping water from Calallan Plant 9 to the community. $150,000.
▲ **Alaska, Anchorage**—City, City Hall, voted bonds May 16, 11 mi. 6 to 10 in. pipe to serve Eastchester, $564,000; 9,000 ft. 6 to 16 in. water mains, Proj. 50-A-62, $101,300; water mains in Mt. View Area, $400,000. C. Tryck, city engr. CD 5/3.
Man., Winnipeg—Municipality, 16 in. water main from MacPhillips St. Reservoir direct to Stevenson Airport, $400,000. W. D. Hurst, City Hall, city engr.
Que., Val Morin—Municipality, J. A. Theoret, secy., plans by Lalonde, Gironard & Letendre, 7379 St. Hubert St., Montreal, Que., WW. $200,000.

SEWERS, WASTE DISPOSAL

Calif., Redwood City—City, City Hall, voted $300,000 bonds sewerage sys. CD 4/13.
▲ **Mich., Marquette**—City, City Hall, sewage disposal plant, treatment facilities, $1,000,000, Drury, McNamee & Porter, State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 9/16/48.
Miss., Grenada—City, $475,000 bond election June 16, sanitary sewer imprvs. CD 9/26.
▲ **R. I., Newport**—City, City Hall, Contr. A, long wharf sewerage pump station, constr. 8 m.g.d. sewage pump station, venturi meter vault and connecting piping, furnish, install pump equip. mech. cleaned bar rack, venturi meter and other equip. and appurtenant work.; Contr. C, sewers, drain, force mains and appurtenance concrete sewers, 1,164 ft., 72, 66, 48 and 30 in. pipe; 11,060 ft. 24 in. concrete force mains, 1,140 ft. 18 in. vitr. clay sewer, 330 ft. 15 in. concrete chain; 13,700 lb. 8-to 24-in. misc. c.i. pipe and fittings, 2 diversion structures, 3 junction chambers, 1 curb inlet structure, 9 manholes and appurtenances. Part of $2,000,000 proj. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs. CD 10/2/47.
Tex., Houston—Miles Strickland, 1504 Fannin St., sanitary sewers, $65,000; storm sewers, drainage, area with earthwork, $65,000, off Dallas Hy. Douglas Eng. Co., 1504 Fannin St., Houston, consult. engrs.
† **Alaska, Anchorage**—Alaska Pub. Wks., Dpt. Interior, Juneau, voted bonds May 16, 18,700 ft. 8-to 15-in. sewers, Proj. 50-A-55. C. Tryck, city engr. CD 4/18.

BRIDGES

O., Cincinnati—Ohio Welfare Dpt., State Office Bldg., S. Front St., Columbus, vehicle underpass at Longview State Hospital. $250,000.
Tex., Freeport—Brazoria Co., city of Freeport and Velasco, and Angleton, Court House Bldg., vehicle and pedestrian bridge between the 2 towns. $350,000. CD 4/1/48.
Tex., Midland—Midland Co. Court House, voted bonds May 19, grade separation proj. $300,000. CD 9/19.
Washington—Great Northern Ry. Co., H. J. Seyton, ch. engr., 175 E. 4 St., St. Paul, Minn., bridge over Swinomish slough on Anacortes-Mount Vernon line, with center swing span on concrete sub structure, Skagit Co. $370,000.

STREETS AND ROADS

Ill., Danville—Bd. Supervs., Vermillion Co., Court House, street grading, culvert constr., paving and grading, $800,000.
▲ **Ohio**—State Hy. Dpt., Columbus,
Columbus innerbelt expressway sys., incl. Spring-Sandusky St. interchange, connecting Dublin Rd., Spring, Sandusky and Long Sts. and Olentangy River Rd. Summit St.
viaduct over railroad tracks to connect N. 3 and Summit Sts., a segment of north side of Innerbelt.
construct north side of Innerbelt from Spring-Sandusky St. interchange to 4th St. interchange.
The North Side Freeway from Hudson St. to Fort Hayes interchange near Fort Hayes, the Innerbelt from Fort Hayes Interchange to E. Broad St., the Leonard Ave. extens. from Fort Hayes Interchange; imprvt. E. Spring St.
completion 4th St. and Fort Hayes Interchanges and the sect. between the two.
West Sect. of Innerbelt from Spring-Sandusky St. Interchange to Mount St. Interchange.
construct remaining sect. of Innerbelt on East Side from Fulton to E. Broad Sts.
exten. North Side Freeway from Hudson St. to connections with U.S. Rt. 23 and St. Route 161.
West Side Freeway from Spring-Sandusky St. interchange to connect with U.S. Route 40 east of New Rome and construct new Grandview Ave. bridge.
construct Southwest Freeway from Mound St. Interchange to connect with U.S. Rt. 2 and St. Rt. 3 near Frank Rd., completing Mound St. interchange.
East Side Freeway from Parsons to Livingston Aves. near Alum Creek and completion Fulton St. Interchange.
completion East Side Freeway from Livingston Ave. to connect with U.S. Rt. 40 near Big Walnut Creek.
Olentangy Freeway (along Olentzngy River Rd.) from Spring-Sandusky St. Interchange to King Ave. $85,350,000. Howard-Needles-Tammen & Bergendoff, 1400 Wilson Rd., Kansas City, Mo., consult. engrs. CD 11/24/43.
Okla., Lawton—City, c. conc. paving Gore, 17 and South Second Sts. $110,000. Charles Gallagher, Lawton, consult. engr.
Tex., Eagle Lake—City, voted bonds, asph. on gravel paving 9 mi. streets. $250,000. Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult. engrs.
Tex., Edna—Jackson Co., Court House, Edna, road and bridge constr. and imprvs., Road Dist. 18. $250,000.
Tex., Midland—Midland Co. Court House, voted bonds, wid'n. Hy. 80, $125,000; imprv. and paving Pegasus Oil field Rd., $225,000; imprv., repairing, grading, drainage various roads. $300,000; completion Front St. imprvs. and paving, $150,000; imprv. and paving Big Spring St., $150,000. CD 5/8.
Wyo., Evanston—City, street Imprvs. $306,000. G. H. Chapman, Evanston, city engr.

EARTHWORK, WATERWAYS

O., Toledo—Ohio Welfare Dpt., State Office Bldg., S. Front St., Columbus, clean and deepen Maumee Bay. $100,000.
† **Washington**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., repairs to Conconully Dam, Okanogan, $126,000.

AIRPORTS

▲ † **Ariz., Tucson**—AIRPORT IMPRVS.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., imprvs. at Davis-Monthan Air Force Base, $8,415,000. CD 3/27.
▲ † **Calif., Barstow**—BUILDINGS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., buildings, runways, taxiways, etc. at George Air Force Base, $4,061,000. Ralph M. Parsons Co., 617 S. Olive St., Los Angeles, Calif., consult. engr.
† **Calif., Muroc**—HOSPITAL—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by Albert C. Martin & Assoc., 333 S. Beaudry St., Los Angeles,

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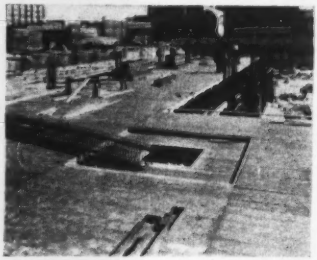

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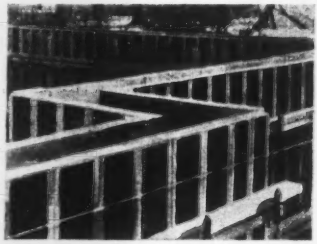

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Dawson, Wade & Co. Ltd., 775 Clark Dr., Vancouver, B. C., Low Bidder, $628,724, reconstr. 7.23 mi. Trans-Canada Hy., Golden-Yoho National Park Boundary, BRITISH COLUMBIA, Province of B. C., Parliament Bldgs., Victoria, B. C. Bids May 22. CD 5/11.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Continental Constr. Ltd., and Evans Constr. Co. Ltd.,** Lethbridge, Alta. Contract Awarded, Joint Bid, $698,008, grading 31 mi. Trans-Canada Hy. from Suffield to Dinmore****W. C. Wells Constr. Co., Calgary, $277,429, grav. base and asph. 15½ mi. hy. Cardston and Carway***R. H. Smith, Rimbey, Alta., grading 20.02 mi. hy. Perrywale and Athabasca**** Mannix-O'Sullivan Ltd., Edmonton, Alta., $360,353 grading 20 mi. stretch hy., House River to Valleyview ****Standard Gravel & Surfacing Co., Calgary, Alta. $206,259, grading 17 mi. hy. Pembina River to Clyde Corner, ALBERTA. Province of Alberta, Parliament Bldgs. Edmonton, Alta. Grand total $1,741,-710. Awarded May 21. CD 12/3/43.

Commonwealth Constr. Co. Ltd., 300 Royal Bank Bldg., Winnipeg, Man. Contract Awarded. $337,762, surf. 13.2 mi. from Virden to Reaper, MANITOBA. Province of Manitoba, Winnipeg, Man. Bids May 18. CD 5/14.

Brandt Constr. Co., Steinbach, Man. Contract Awarded. $67,642, grading 10 mi. in municipalities of Brokenhead and St. Clements, MANITOBA. Province of Manitoba, Winnipeg, Man. CD 11/8/43.

Wallaceburg Water Comm., Wallaceburg, Ont., Own Forces. Approx. $50,000. 1 m. g. reservoir, distr. sys. in pavement, etc. WALLACEBURG, ONT. CD 4/26.

P. Scadere, Ltd., 7401 Montee St. Michel St., Montreal, Que. Contract Awarded, $57,424, water mains, ST. MICHEL, QUE., Municipality, St. Michel, Que. J. N. Langelier, 10 St. James St., Montreal, Que., engr.

James Accurso Ltd., 10150 St. Lawrence St., Montreal, Que. Contract Awarded. $79,000. sewers, ST. MICHEL, QUE., Municipality, St. Michel, Que. J. N. Langelier, 10 St. James St. W., Montreal, engr.

CONTRACTS—BUILDINGS

Heroux & Robert Ltd., 1414 Crescent St., Montreal, Que. Contract Awarded, Approx. $400,000, concrete, stone, parish CHURCH, HULL, QUE. Parish of St. Joseph, Hull, Que. L. Sarra-Bournet, Hotel de Ville, Hull, Que., archt.

W. Lalonde, Rigaud, Que. Contract Awarded. Approx. $350,000. COLLEGE extens., RIGAUD, QUE. Reverend Fathers of St. Viateur, 1145 St. Viateur Ave., Montreal, Que. J. M. Lafleur, 72 St. Cecele St., Valleyfield, Que., archt.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Redwood City—City, City Hall, voted $500,000 bonds, water sys. imprvs. CD 4/13.

▲ **Calif., San Diego**—City, Civic Center Bldg., voted $2,000,000 bonds, replacing deteriorated water lines, rebuilding two basins, cement lining of pipe and pumping plant. G. E. Arnold, city water dir. CD 3/15.
Calif., Watsonville—City, City Hall, voted $150,000 bonds, water sys. imprvs., incl. tanks, pumps, pipe lines etc. R. E. Fowler, city engr. CD 4/27.
Fla., Lake Placid—Town, expansion water supply and exten. distr. system $100,000. Briley, Wild & Assocs., P.O. Box 3052, Daytona Beach, consult. engrs.
Fla., Miami Beach—City c/o City clk., bond election June 5, WW imprvs. $650,000.
Fla., Perry—Town, expansion water treatment plant, $100,000. Briley, Wild & Assocs., P.O. Box 3052, Daytona Beach, consult. engrs.
N. C., Roxboro—Town. Mayor Richard Long, bond election June 16, water plant, etc. $350,000. Platt & Davis, Durham, consult. engrs. CD 3/3/47.
Tex., Robstown—Violet Fresh Water Dist., Robstown, voted bonds, piping water from Calallan Plant 9 to the community. $150,000.
▲ **Alaska, Anchorage**—City, City Hall, voted bonds May 16, 11 mi. 6 to 10 in. pipe to serve Eastchester, $564,000; 9,000 ft. 6 to 16 in. water mains, Proj. 50-A-62, $101,300; water mains in Mt. View Area, $400,000. C. Tryck, city engr. CD 5/3.
Man., Winnipeg—Municipality, 16 in. water main from MacPhillips St. Reservoir direct to Stevenson Airport, $400,000. W. D. Hurst, City Hall, city engr.
Que., Val Morin—Municipality, J. A. Theoret, secy., plans by Lalonde, Gironard & Letendre, 7379 St. Hubert St., Montreal, Que., WW, $200,000.

SEWERS, WASTE DISPOSAL

Calif., Redwood City—City, City Hall, voted $300,000 bonds sewerage sys. CD 4/13.
▲ **Mich., Marquette**—City, City Hall, sewage disposal plant, treatment facilities, $1,000,000, Drury, McNamee & Porter, State Savings Bank Bldg., Ann Arbor, consult. engrs. CD 9/16/48.
Miss., Grenada—City, $475,000 bond election June 16, sanitary sewer imprvs. CD 9/26.
▲ **R. I., Newport**—City, City Hall, Contr. A, long wharf sewerage pump station, constr. 8 m.g.d. sewage pump station, venturi meter vault and connecting piping, furnish, install pump equip. mech. cleaned bar rack, venturi meter and other equip. and appurtenant work.; Contr. C, sewers, drain, force mains and appurtenance concrete sewers, 1,164 ft., 72, 66, 48 and 30 in. pipe; 11,060 ft. 24 in. concrete force mains, 1,140 ft. 18 in. vitr. clay sewer, 330 ft. 15 in. concrete chain; 13,700 lb. 8-to 24-in. misc. c.i. pipe and fittings, 2 diversion structures, 3 junction chambers, 1 curb inlet structure, 9 manholes and appurtenances. Part of $2,000,000 proj. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs. CD 10/2/47.
Tex., Houston—Miles Strickland, 1504 Fannin St., sanitary sewers, $65,000; storm sewers, drainage, area with earthwork, $65,000, off Dallas Hy. Douglas Eng. Co., 1504 Fannin St., Houston, consult. engrs.
† **Alaska, Anchorage**—Alaska Pub. Wks., Dpt. Interior, Juneau, voted bonds May 16, 18,700 ft. 8-to 15-in. sewers, Proj. 50-A-55. C. Tryck, city engr. CD 4/18.

BRIDGES

O., Cincinnati—Ohio Welfare Dpt., State Office Bldg., S. Front St., Columbus, vehicle underpass at Longview State Hospital. $250,000.
Tex., Freeport—Brazoria Co., city of Freeport and Velasco, and Angleton, Court House Bldg., vehicle and pedestrian bridge between the 2 towns. $350,000. CD 4/1/48.
Tex., Midland—Midland Co. Court House, voted bonds May 19, grade separation proj. $300,000. CD 9/19.
Washington—Great Northern Ry. Co., H. J. Seyton, ch. engr., 175 E. 4 St., St. Paul, Minn., bridge over Swinomish Slough on Anacortes-Mount Vernon line, with center swing span on concrete sub structure, Skagit Co. $370,000.

STREETS AND ROADS

Ill., Danville—Bd. Supervs., Vermillion Co., Court House, street grading, culvert constr., paving and grading, $800,000.
▲ **Ohio**—State Hy. Dpt., Columbus,
Columbus innerbelt expressway sys., incl. Spring-Sandusky St. interchange, connecting Dublin Rd., Spring, Sandusky and Long Sts. and Olentangy River Rd. Summit St.
viaduct over railroad tracks to connect N. 3 and Summit Sts., a segment of north side of Innerbelt.
construct north side of Innerbelt from Spring-Sandusky St. interchange to 4th St. interchange.
The North Side Freeway from Hudson St. to Fort Hayes interchange near Fort Hayes, the Innerbelt from Fort Hayes Interchange to E. Broad St., the Leonard Ave. extens. from Fort Hayes Interchange; imprvt. E. Spring St.
completion 4th St. and Fort Hayes Interchanges and the sect. between the two.
West Sect. of Innerbelt from Spring-Sandusky St. interchange to Mount St. Interchange.
construct remaining sect. of Innerbelt on East Side from Fulton to E. Broad Sts.
exten. North Side Freeway from Hudson St. to connections with U.S. Rt. 23 and St. Route 161.
West Side Freeway from Spring-Sandusky St. interchange to connect with U.S. Route 40 east of New Rome and construct new Grandview Ave. bridge.
construct Southwest Freeway from Mound St. Interchange to connect with U.S. Rt. 2 and St. Rt. 3 near Frank Rd., completing Mound St. interchange.
East Side Freeway from Parsons to Livingston Aves. near Alum Creek and completion Fulton St. Interchange.
completion East Side Freeway from Livingston Ave. to connect with U.S. Rt. 40 near Big Walnut Creek.
Olentangy Freeway (along Olentangy River Rd.) from Spring-Sandusky St. Interchange to King Ave. $85,350,000. Howard-Needles-Tammen & Bergendoff, 1400 Wilson Rd., Kansas City, Mo., consult. engrs. CD 11/24/43.
Okla., Lawton—City, c. conc. paving Gore, 17 and South Second Sts. $110,000. Charles Gallagher, Lawton, consult. engr.
Tex., Eagle Lake—City, voted bonds, asph. on gravel paving 9 mi. streets. $250,000. Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult. engrs.
Tex., Edna—Jackson Co., Court House, Edna, road and bridge constr. and imprvs., Road Dist. 18. $250,000.
Tex., Midland—Midland Co. Court House, voted bonds, wid'n. Hy. 80, $125,000; imprv. and paving Pegasus Oil field Rd., $225,000; imprv., repairing, grading, drainage various roads. $300,000; completion Front St. imprvs. and paving, $150,000; imprv. and paving Big Spring St., $150,000. CD 5/8.
Wyo., Evanston—City, street Imprvs. $306,000. G. H. Chapman, Evanston, city engr.

EARTHWORK, WATERWAYS

O., Toledo—Ohio Welfare Dpt., State Office Bldg., S. Front St., Columbus, clean and deepen Maumee Bay. $100,000.
† **Washington**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., repairs to Conconully Dam, Okanogan, $126,000.

AIRPORTS

▲ † **Ariz., Tucson**—AIRPORT IMPRVS.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., Imprvs. at Davis-Monthan Air Force Base, $8,415,000. CD 3/27.
▲ † **Calif., Barstow**—BUILDINGS, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., buildings, runways, taxiways, etc. at George Air Force Base, $4,061,000. Ralph M. Parsons Co., 617 S. Olive St., Los Angeles, Calif., consult. engr.
† **Calif., Muroc**—HOSPITAL—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., plans by Albert C. Martin & Assoc., 333 S. Beaudry St., Los Angeles,

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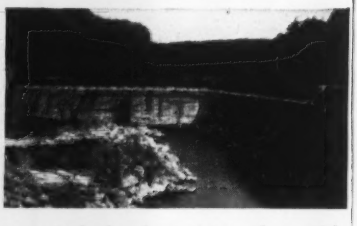

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60-bed hospital at Edwards Air Force Base, $822,000. CD 4/5.

▲† **Calif., Oxford**—AIRPORT IMPRVS.—U. S. Eng., 751 S. Figueroa St., Los Angeles, imprvs. at Oxnard Air Force Base, $3,184,000. CD 3/27.

▲† **Calif., Riverside**—AIRPORT IMPRVS.—U. S. Eng., 751 S. Figueroa St., Los Angeles, aprons, runways, taxiways at March Air Force Base, $8,664,000. CD 4/5.

▲† **Kan., Wichita**—AIRPORT IMPRVS.—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., plans by Schmidt, McVay & Peddie, 1832 Adams St., Topeka, Wichita Air Force Base, $15,000,000, Wilson & Co., 223 N. Santa Fe, Salina, consult. engrs. CD 2/2.

▲ **Nev., Las Vegas**—AIRPORT—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., aprons, runways, taxiways, etc. at Nellis Air Force Base. $3,984,000. Kuebig & Koebig, Rowan Bldg., Los Angeles, Calif., consult. engrs.

LATIN AMERICA

▲ **Mexico, Monterrey**—Ciudad de Los Ninos c/o Father Carlos Alvarez, Monterrey, Mexico, plans boys town, permanent type constr. $1,000,000.

PUBLIC BUILDINGS

Calif., Fresno — SCHOOL — Bullard Elementary School Dist., 525 Harvard St., Fresno, school. $454,000.

Calif., Los Gatos—SCHOOL—Los Gatos Unified School Dist., 130 Magneson Loop, voted bonds Los Gatos High School, $806,000. CD 11/3/47.

Calif., Paradise—SCHOOL—Paradise Unified School Dist., Paradise, Calif., voted $274,000 bonds, Junior and Senior High School. $564,000. CD 5/4.

▲ **Calif., Sacramento** — SCHOOL—Sacramento City Uni. School Dist., 1200 21 St., voted $6,500,000 bonds, elementary and high school. CD 4/12.

Colo., Auror —SCHOOLS—Bd. Educ., School Dist. 28-J, Consolidated Dist. of Adams and Arapahoe Counties, 9735 E. Colfax Ave., voted bonds, 2 new grade schools and Junior High School addns. $536,000. Atchison & Kloverstrom, 1254 Monaco Parkway, Denver, consult. engrs. CD 5/9.

Colo., Brighton—SCHOOLS—School Dist. 27, Adams County, Brighton, voted bonds May 7, 6 classroom addn. to Junior High School; remodeling high school into Junior High School and constr. new high school, $936,000. Atchison & Kloverstrom, 1254 Monaco Parkway, Denver, Colo., consult. engr. CD 4/24.

Colo., Denver—MUSEUM—City and Denver Co., City and County Bldg., Denver, Denver Museum of Natural History in City Park addn. $540,000.

Fla., Miami—SCHOOL—Dade Co. Bd. P. Instruction, 275 W. 2 St., plans by Watson, Touby & Watson, 1395 N. W. 21 St., high school, N. W. 38 Ave. and 83 Sts. $800,000. CD 19/9/50.

▲ **Ill., Chicago**—HOSPITAL—Cook Co. Bd., County Bldg., Zone 2, altering county hospital, 1835 Harrison St., $6,582,000, Raymond Houlihan, 30 N. Dearborn St., Zone 2, consult. engr.

Ind., Logansport—SCHOOL—School Dist., Carl Zimmerman, supt., school. $750,000.

Ind., South Bend—SCHOOL—South Bend School Bd., plans by N. Roy Shambleau, J. M. M. Bldg., Lombardy Drive Grade School, $500,000.

Ind., Thorntown — SCHOOL — Sugar Creek Twp. School, Thorntown, high school. $400,000.

▲ **Kan., Wichita**—SCHOOL—Bd. Educ., Wichita, plans by Hibbs & Robinson, 519 S. Broadway, Charles Curtis School, $1,100,000. CD 4/12.

Mass., Boston—Municipal—City, Pub. Welfare & Park Dpts., plans by John M. Gray Co., archts. and engrs., 75 High St., 3 story, bsmnt., U-shaped municipal bldg., Ward 10, $850,000.

Mich., Lambertsville—SCHOOL—Bedford Rural Agricultural Dist., J. M. Conart, pres. Bd. Educ., brick, concrete school, Douglas Rd. $800,000.

Miss., Indianola — SCHOOL — City, defeated $750,000 bonds, school imprvs. CD 5/1.

Minn., Prior Lake — SCHOOL—Bd. Educ., voted $400,000 bonds May 15, school, H. B. Crommett, 2412 Valentine Ave., St. Paul, archt.

Minn., Robbinsdale—SCHOOL—Bd. Educ., F. Bayard, clk., voted $800,000 bonds May 15, Forest Ave. Grade School in Crystal Village, $700,000. Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 4/13.

N. Y., New York—GARAGE and SHOP—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Harvey Wiley Corbett, 300 Fourth Ave., Zone 10, Dpt. of Sanitation garage and repair shop, 269-283 Delancey St. $525,000.

N. C., Wadesboro—HOSPITAL—Anson County Hospital, Dr. F. Y. Sorrell, chn. Bd., 50-bed hospital $775,000.

O., Jackson—COURT HOUSE—Bd. Comms. Jackson Co. John Anderson, pres. Bd., Jackson, plans by DeVoss & Donaldson, Natl. Bank Bldg., Portsmouth, 2 story masonry court house. $750,000.

O., Toledo—SCHOOL—Bd. Educ., Wm. E. Hallauer, Southard Ave., plans by Wernert, Taylor, Sanzenbacher & Morris, Nicholas Bldg., 1 story U-shaped school, north of W. Central Ave. at extens. of Marvin and Ilger Aves. and Middlesex Dr. $430,000. CD 11/23/49.

▲ **O., Toledo**—HIGH SCHOOL—Bd. Educ., Oregon Twp. School Dist., Route 5, plans by Britsch & Munger,

Nicholas Bldg., high school and converting Clay High School into Junior High School, $1,750,000.

▲ **Pa., Stoneboro**—HIGH SCHOOL—Lake View Joint Consolidated School Dist., R. D. 4, Mercer, plans by The Thayer Co., 408 Greer Bldg., New Castle, Consolidated Junior and Senior High School. $1,000,000.

▲ **Tenn., Knoxville** — SUPREME COURT — State, State Capitol, Nashville, plans by Bauman & Bauman, 813½ Market St., supreme court bldg. for East Tennessee. $1,500,000. CD 4/2.

Tex., Electra — HIGH SCHOOL — Electra Independent School Dist., Electra, voted bonds May 15. Junior High School, $425,000. Caudill, Rowlett & Scott, Electra, archts.

Tex., Kerrville—HOSPITAL—Board for State Hospitals & Special Schools, 901 W. 45 St., Austin, plans by Giesecke, Kuehne & Brooks, 205 E. 8 St., Austin, six 40x200 ft., masonry bldgs., at Hospital for Senile Men and Women. $400,000. Walter C. Moore, c/o owner, superv. archt. CD 5/9.

▲ **Tex., Wichita Falls**—SCHOOLS—Wichita Falls Independent School Dist., Wichita Falls, plans by Ray Arnbold, Nacol Bldg., and Jesse G. Dixon, Box 1799, Wichita Falls, grade school, $350,000; Elementary School No. 2 addn. $300,000; Elementary School No. 1 addn., $325,000; Senior High School addn., $425,000; Junior High School addn., $350,000. Bonds voted. CD 5/17.

▲ **Va., Richmond**—SCHOOL—Henrico Co., 22 and Main Sts., bond election Sept. 25, school constr. $5,000,000.

† **Wash., Fort Worden**—U. S. Engr., 4735 E. Marginal Way, Seattle, Zone 4, rehabilitation Post and Sub-Posts at Fort Worden, Fort Flagler and Hudson Point in vicinity of Port Townsend, Serial No. ENG 45-108-51-173.

Wash., Pomeroy—SCHOOL—School Bd., Pomeroy, plans by B. K. Ruehl, Old Natl. Bank Bldg., Spokane, 14-classroom school. $400,000.

† **Wash., Port Townsend**—BUILDINGS, etc.—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, rehabilitation buildings, water sys., streets, etc. at Forts Worden and Flagler. $210,000.

Wash., Seattle—HOUSING—City, County-City Bldg., housing at Diablo for operators of Ross power house. $495,000. E. R. Hoffman, city light supt.

Wash., Tacoma—SCHOOL—School Bd., 601 S. 8 St., remodeling, enlarging Franklin School, $350,000; enlarge Stanley School, $300,000.

W. Va., Griffithsville—HIGH SCHOOL—Bd. Educ., Lincoln Co., W. D. Bias, pres., West Hamlin, plans by Greife & Daley Payne Bldg., Charleston, 2 story, masonry Dumal High School. $315,000.

▲ **W. Va., Williamson**—SCHOOLS—Mingo Co. Bd. Educ., Williamson, plans by Frampton & Bowers, 1117 5th Ave., Huntington, school bldg. program $2,361,000.

Wis., Lake Geneva—HOUSING—Henry De Graf, Lake Geneva, nine 4 family apartment units, $360,000.

Alaska, Anchorage—WAREHOUSE—City, City Hall, voted bonds, warehouse, $320,000. CD 2/28/50.

▲ **Alaska, Ketchikan**—HIGH SCHOOL—City, Ketchikan, $1,032,500 bond election, 2 story rein.-con. high school, $2,056,000. W. A. Johnson, Everett, Wash., archt. Hawthorne Eng. Service, Ketchikan, consult. engr. CD 7/12/49.

▲ **B. C., Vancouver**—POST OFFICE—Federal Govt., Hunter Bldg., Ottawa, Ont., plans by McCarter & Nairne, 1930 Marine Bldg., Vancouver, 5 story, high and section 13 story high, rein.-con., 260x500 ft., post office bldg. $4,000,000. CD 4/20/45.

▲ **N. S. Halifax** — HOSPITAL—Children's Hospital Comn., Halifax, plans by C. A. Fowler & Co., Capitol Bldg., Barrington St., Halifax, hospital addn. $1,000,000. CD 4/25/40.

▲ **Ont., Cobourg**—DEPOT—S. M. Connolly, engr., c/o Defence Constr. Ltd., 441 Queen's Quay, W., Toronto, Ordnance Depot for R. C. O. C., Approx. $3,500,000.

Ont., Sarnia—SCHOOL—Bd. Educ., F. H. Walker, chn., Sarnia, plans by S. B. Coon & Son, 4 St. Thomas St., Toronto, 11-classroom Hanna High School. Approx. $996,000. CD 9/26.

Que., Arvida—SCHOOL—School Comn., Y. Morrier, secy., Arvida, plans by Lamontagne & Gravel, 187 Racine St., Chicoutimi, brick, concrete SCHOOL. Approx. $400,000. CD 8/8/50.

COMMERCIAL BUILDINGS

▲ **Calif., Inglewood**—HOSPITAL—The Sisters of St. Joseph of Carondelet, c/o Albert C. Martin & Assocs., archts., 333 S. Beaudry Ave., Los Angeles, 8 story, rein.-con. Daniel Freeman Memorial Hospital, $2,500,000.

▲ **Colo., Denver**—OFFICE—National Farmers Union, 1555 Sherman St., Denver, plans by S. Arthur Axtens, 633 Cooper Bldg., 8 story, 105x120 ft. brick, steel office. Sherman St. between E. Colfax and E. 16 Aves. $1,000,000. CD 4/12.

▲ **Conn., Hartford**—OFFICE—The Aetna Life Insurance Co., 151 Farmington Ave., plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, 6 story, 125x175 ft. masonry, 135,000 sq. ft., home office bldg. wing addns., Segourney St. $3,500,000.

D. C., Wash.—SCHOOL—St. Alban's School for Boys, Mount St. Albans, Wash., D. C., plans by Faulkner, Kingsbury & Stenhouse, Ring Bldg., Wash., D. C., 5 story classrooms and laboratories stone adn. to St. Alban's School for Boys, $311,000.

Fla., Ocala — HOSPITAL — Munroe Memorial Hospital, Ocala, plans by Duncan & Duncan, 402 Robertson Bldg., hospital addn. Approx. $300,000. CD 4/24/47.

Kan., Hillsboro—SCIENCE HALL—Tabor College, Hillsboro, plans by Forsblom & Parks, Beacon Bldg., Wichita, science hall. $300,000. CD 1/6.

La., New Orleans—HOUSING—Eighth Naval Dist., 600 South St., construct, manage, finance eight 100 housing units, Naval Air Station at Algiers, $750,000. Rosenthal, Jones, Kessels & Godat, California Bldg., archts.

Miss., Bay St. Louis—DORMITORY—St. Augustine Seminary, c/o M. L. McNair, archt., Rosenbaum Bldg., Meridian, dormitory, $300,000.

▲ **Mo., St. Louis**—HOSPITAL—Alexian Brothers Hospital, 3933 S. Broadway, Zone 18, hospital addn., modernization. $2,500,000.

▲ **N. Y., Forest Hills**—APARTMENT—Venus Arms Corp., c/o Philip Birnbaum, archt, 12 E. 48 St., New York, Zone 17, 9 story, 137x192 ft. apartment, 108 St. between 69 Rd. and 69 Ave. $1,250,000.

▲ **N. Y., New York**—APARTMENT—240 Central Park South, Inc., 31 Union Square West, Zone 13, plans by Mayer & Whittlesey & M. M. Glass, 31 Union Square West, Zone 3, 19 story apartment, 216-220 Central Park South. $1,200,000.

N. C., Charlotte—HOME FOR AGED—Western North Carolina Conference of Methodist Church, c/o Louis H. Asbury & Son, archts., 121 Brevard Ct., Charlotte, N. C., south wing of Methodist Home for the Aged. $350,000. CD 5/12/44.

▲ **O., Akron**—OFFICE—Ohio Building, Inc., Alfred Herberich, pres., Ohio Bldg., 8 story office S. High and Church Sts. $1,500,000.

O., Alliance—Y.M.C.A. BLDG.—Young Mens Christian Assn., Alliance, Y.M.C.A. bldg. $430,000.

Tex., Bellaire—DWELLINGS—W. A. Keep, 1110 Winbern St., Houston, plans by Joseph B. Reynolds, 2518 Times St., Houston, 41 cedar shake, brick, stone type dwellings, concrete slab fdn. $700,500.

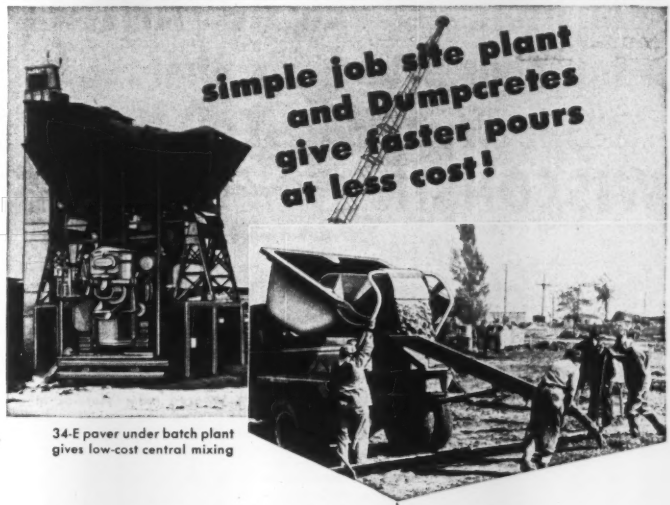
▲ **Tex., Corpus Christi**—HOUSING—Dpt. Navy, c/o Naval Base, Corpus Christi, construct, manage, finance, 125 one-bedroom brick housing units, $750,000; 140 two-bedroom brick, stucco housing units, $1,050,000; 75 three-bedroom brick, stucco, concrete housing units, $800,000, Contr. NOY 24063. Wm. McCiendon & Assoc., 127 N. Staples St., archts. and consult. engrs.

Tex., Houston — DWELLINGS — Baron Clarence, c/o Spring Branch, 16 one and two story masonry dwellings, concrete slab and pier fdn., Voss Rd. $300,000.

Tex., Houston—DWELLING—Robert McCarthy, 1612 Kipling St., 15 masonry dwellings, concrete slab and pier fdn., Beinhorn Rd. $325,000.

Tex., Houston—DWELLINGS—Wm. Ogg, 4229 Vivian Rd., 18 masonry dwellings, concrete slab fdn., furnace heating, near Spring Branch. $350,000.

Tex., Houston—DWELLINGS—M. F. Satterwhite & Assoc., 4151 Lanark Lane, 22 two story masonry high-class dwellings, concrete slab and beam fdn., furnace heating, $850,000.



34-E paver under batch plant gives low-cost central mixing

Here's a contractor who knows how to cut costs. His batch plant, plus a 34-E Paver gives him high-quality central-mixed concrete for a million dollar Kresge warehouse. When this 10,000 yard job is done, he'll move the whole plant to a new location for a highway job.

On both jobs, he'll use Dumpcretes. They'll save him time and money.

They charge fast. They travel fast. If you want a quick pour, they'll give you four yards in 60 seconds. And you can place *direct*—either through the long 13-foot chute, or into forms five feet high or into buggies, barrows or buckets.

They cost less—only ⅓ as much as a truck mixer. There's practically no repair and maintenance—the few moving parts are simple and rugged. Dumpcretes are money-in-the-bank for you. To get the details on 2, 3 and 4 yd. sizes, send the coupon today.

Send booklet "Seven New Ways to Mix and Place Concrete at Lowest Cost"

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Firm_____

Address_____

DUMPCRETE

DIVISION

MAXON CONSTRUCTION COMPANY, INC.

600 Talbott Building
Dayton 2, Ohio

▲ Va., Richmond—BUILDING—Virginia Electric Power Co., 7 and Franklin Sts., building addn., 7 and Franklin Sts. $2,020,000.

INDUSTRIAL BUILDINGS

▲ Ala., Demopolis—PLANT—Borden Co., 350 Madison Ave., New York, N. Y., chemical plant. Approx. $1,000,000.

▲ Ga., Augusta—POWER PLANT—Georgia Power Co., 78 Marietta St., N.W., Atlanta, electric power plant. Approx. $1,000,000.

Ga., Moultrie—SALES and SERVICE—Darbyshire Tractor Co., Moultrie rebuild farm equipment sales and service bldg. $100,000.

Ill., Chicago—PLANT—Chicago 7-Up Bottling Co., Kinzie and Kilbourn Sts., Zone 44, 50,000 sq. ft. bottling plant. $750,000.

Ill., Chicago—PLANT—Container Corp. of Chicago, 38 S. Dearborn St., Zone 3, plans by Morton L. Pereira 100 W. Monroe St., Zone 3, paper pressing works plant. $500,000.

Kan., Albion (Phillipsburg, P. O.)—COMPRESSOR STATION—Kansas Nebraska Natural Gas Co., Phillipsburg, compressor station unit. $100,000.

Ky., Lebanon—WAREHOUSE—Growers Tobacco Warehouse, Lebanon, rebuild tobacco warehouse. $100,000.

▲ Ky., Louisville—PLANT—General Electric Co., River Rd., Schenectady, N. Y., plant to mfg. jet engine parts, incl. five 600x1,000 ft. bldgs., 300x2,000 ft. warehouse, administration and laboratory, railroad yards. $14,000,000. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., engr., archt. CD 4/12.

▲ Minn., St. Paul—PLANT—Brown & Bigelow, 1286 University Ave., altering calendar advertising plant. $1,000,000.

▲ N. J. Morris Plains—FACTORY, etc.—Monroe Calculating Machine Co., 555 Mitchell St., Orange, plans by Epple & Seaman, 901 Broad St., Newark, N. J., factory and laboratory bldgs. on 400 acre site, Hanover Ave., Hanover Tup. $3,500,000.

O., Covington—PLANT—The Miami County Dairy Co., N., Weaver, mngr., Covington, 1 story, 150x280 ft., concrete block ice cream mfg. plant, storage area, offices, etc. $300,000.

▲ O., Dayton—FACTORY—Delco Products Div., General Motors Corp., 329 E. 1 St., factory on 306 acre tract, at southeastern edge of city. $5,000,000.

O., Findlay—TERMINAL—Commercial Motor Freight, Inc., 525 Cleveland St., Columbus, motor freight terminal with 16-door freight dock and modern offices. $100,000.

▲ O., Toledo—CRACKING UNIT—Pure Oil Co., 35 E. Wacker Dr. Chicago, Ill., catalytic cracking unit at Toledo Refinery. $7,400,000.

Pa., Irvona—MANUFACTURING—Hiram Swanks Sons, Johnstown, fire clay products mfg. bldg. $100,000.

Pa., Johnstown—MANUFACTURING—Hiram Swanks Sons, Johnstown, fire clay products mfg. bldg. $175,000.

▲ S. C., Marietta—PLANT—Deering, Milliken & Co., Inc., 240 Church St., New York, N. Y., mfg. plant. Approx. $1,000,000.

▲ Tex., Amarillo—REFINERY—Levelland Refinery Co., Amarillo, refinery. $2,441,763.

▲ Tex., Baytown—REFINING UNIT—Humble Oil & Refining Co., Baytown, alkylation refining unit. $2,000,000. CD 2/19/48.

Tex., Big Spring—REFINERY—Cosden Petroleum Co., Big Spring, refinery cracking unit. $270,000.

▲ Tex., Borger—PLANT—Phillips Petroleum Co., Bartlesville, Okla., aviation alkylate unit. $1,604,315; special alkylation feed facilities unit, $157,700.

▲ Tex., Dallas—PLANT—Collins Radio Co., 835 35 St., N.E., Cedar Rapids, Ia., plans by Smith & Mills, 921 Mercantile Bank Bldg., radio and electronics mfg. plan. $1,000,000.

▲ Tex., El Paso—PLANT—Standard Oil Co. of Texas, Womble Bldg., plant for production of heating oils; gasoline; diesel fuels. $10,264,000.

Tex., Fort Worth—REFINERY—Premier Petroleum Co., Mt. Olivet Rd., addnl. refinery unit. $650,000.

▲ Tex., Houston—PLANT—Brown & Root, Inc., Box 3, tank plant. $1,500,000. machine tools and equip. $2,500,000.

▲ Tex., San Antonio—REFINERY—W. H. Olmstead & C. B. Fulton, 645 Grandview St., 10,000 bbl. daily capacity aviation gasoline refinery. $8,801,000; alkalyte refinery unit, $3,124,000, on 133 acre tract on W. W. White Rd., east of city.

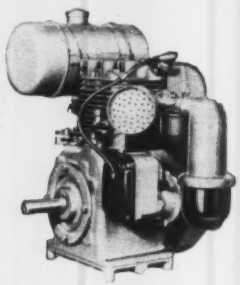
▲ Tex., Sweeny—PLANT—Phillips Petroleum Co., Bartlesville, Okla., basic gasoline refining unit. $4,787,200.

B. C., Esquimalt—FACTORY—Sooke Lake Lumber Co., Esquimalt, establishment wood veneer industry. $300,000.

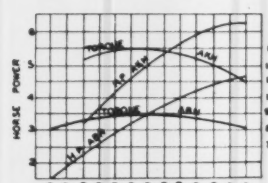
Man., Winnipeg—WAREHOUSE—McLeod's Ltd., 125 Higgins Ave., Winnipeg, plans by Smith, Carter & Katenkoff, Trust & Loan Bldg., 173 Portage Ave. E., mail order warehouse. $525,000. CD 5/16.

▲ Ont., Kenora—PLANT—Owner, c/o Rossen Engineering & Constr. Co., engrs., S. E. Austin and Sutherland Sts., Winnipeg, Man., carry out major alterations to present Grenville rock crushing plant at East Hawk Lake about 40 mi. east of here. $1,500,000-$2,000,000.

Gain More POWER ADVANTAGE for Your 3 to 6 hp. Units . . . *Specify* Single-Cylinder WISCONSIN *Air-Cooled* ENGINES



Models ABN and AKN 4-cycle, single-cylinder standard engines, 3 to 6 hp. (See specifications)



POWER CURVE AND HORSEPOWER LISTING SHOWS MAXIMUM DYNAMOMETER HORSEPOWER OF ENGINE complete with fan, muffler and air cleaner. For continuous heavy-duty operation do not rate the engine at more than 80% of the horsepower shown at any given speed.

Presented here are a few of the basic facts why Wisconsin Heavy-Duty Air-Cooled Engines offer important advantages to the designing engineer, equipment manufacturer and the ultimate user.

1. Rotary type high tension magneto, with impulse coupling, mounted on outside of engine . . . operates as an entirely independent unit that can be serviced or replaced in a few minutes.

2. Self-cleaning tapered roller bearings at *both* ends of the crankshaft . . . will withstand either side-pull or end thrust without danger to the bearings.

3. Maximum torque at usable speeds . . . most desirable for equipment that really has to go to work.

SPECIFICATIONS	Model ABN	Model AKN
Bore	2½"	2⅞"
Stroke	2¾"	2¾"
Piston Displacement—cu. in.	13.5	17.8
Horsepower—1800 R.P.M.	2.5	3.6
2600 R.P.M.	3.7	5.3
3000 R.P.M.	4.2	5.9
3600 R.P.M.	4.6	6.2
Main Bearings	Tapered Roller	
Piston	Aluminum Alloy	
No. of Piston Rings	3	
Connecting Rod	Aluminum Alloy Babbitt Lined	
Crankshaft	Counterbalanced Heat Treated Drop Forging	
Cylinder Head	Aluminum Removable	
Cylinder — Crankcase	Cast Iron	
Valve Seat Insert (Exhaust)	Nickel Chrome Molybdenum Iron	
Spark Plug Size	18 mm. Metric	
Fuel Tank Capacity	1 Gallon	
Weight — Lbs. Net	76	
Weight — Lbs. Crated	89	
Standard Engine		

This is the first of a series of engineering data advertisements about Wisconsin Air-Cooled Engines. Entire series yours on request. Our engineering department will be glad to co-operate with you in adapting Wisconsin Engines to your requirements. Write for further data.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46 WISCONSIN

UNCLASSIFIED

▲† Calif., Norwalk—PUMPING STATION, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., petroleum pumping station and pipe lines. $1,500,000. J. H. Davies, 730 E. 3 St., Long Beach, Calif., consult. engr. Co. W. R. Shuler, c/o owner, engr. CD 11/17/50.

Colo., Denver—SUBTERRANEAN SHELTER—Spears Sanitarium East Tenth Ave. and Jersey St., Denver, 8,000 sq. ft. subterranean shelter, 4 ft. rein.-con. roof 10 ft. below the earth's surface and will accommodate 2,000 women and children. $500,000. Walter H. Simon 1922 E. 18 Ave., consult. engr.

La., Monroe—MOTOR COURT—Frank Varino, Monroe, motor court. $300,000.

N. M., Artesia—PIPE LINE—New Mexico Asphalt & Refining Co., Artesia, expansion gathering pipe line sys. $200,000.

† N. M., Los Alamos—ELECTRICAL DISTRIBUTION SYSTEM—U. S. Atomic Energy Comn., Jos. R. Turan, chief, Contract Div., electrical distr. sys., TA-3 to TA-16, Inv. No. 291-51-133. Approx. $105,000.

N. Y., Brooklyn—COMFORT STATION—Dpt. Parks, Arsenal Bldg., New York, plans by Gustave Chirlian, c/o owner, 1 story comfort station and playground, 469-529 Hawthorne St. $200,000.

Tennessee—RURAL DISTRIBUTION LINES—Tri-State Electric Co-operative, Copperhill, rural distr. lines, Polk Co. $180,000. Patterson & Dewar, Rutland Bldg., Decatur, Ga., consult. engrs. CD 5/16.

▲ Texas, Louisiana, Mississippi, Alabama, Tennessee, Kentucky, West Virginia, Pennsylvania—GAS PIPE LINE—Texas-Ohio Gas Co., c/o J. R. McAuliffe, 1310 McKinney St., Houston, Tex., 1,500 mi. 30 in. welded joint natural gas pipe line from Texas coast, near Wharton to Pennsylvania near Scranton. $170,000,000.

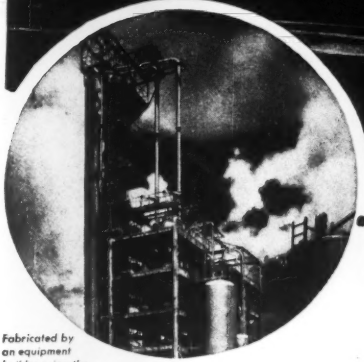
Texas—RURAL DISTRIBUTION LINES—Mid-South Electric Co-operative Assoc., Navasota, sys. imprvs., completion of previously authorized constr., Grimes Co. $155,000.

Texas—RURAL DISTRIBUTION LINES—Town of Dickson, Dickson, Tex., 30 mi. rural distr. lines and sys. imprvs., Dickson Co. $175,000.

† Tex., Amarillo—RAILWAY LINES—U. S. Atomic Energy Comn., Los Alamos, N. M., Pantex railway lines, incl. 3.33 mi. new railway track, reconditioning 5½ mi. track line, Inv. No. 291-51-132. $100,000-$200,000.

† Tex., Amarillo—GAS SUPPLY SYSTEM—U. S. Atomic Energy Comn., c/o Joseph R. Turan, Chief Contract Div., Los Alamos, N. M., natural gas supply sys., Pantex Plant, incl. 36,000 lin. ft. 10- to 12-in. seamless steel pipe, Inv. No. 291-51-134. $400,000.

Wyoming—NATURAL GAS LINE—Northern Gas Co., Casper, 82 mi. 6 in. natural gas line between Rawlins and to Sand Draw and Beaver Creek fields in Fremont Co. $900,000.



Fabricated by an equipment builder using the Lukenomics principle.

...or Alkylation Towers

Project records on this alkylation tower tell a typical Lukenomics story . . . excellent performance, lower costs, simplified construction. The problems presented were solved so well by the equipment builder's experience and his use of Lukens specialty steel plate, heads and steel plate shapes that seven similar towers have since been built. Particularly important now—the long life built into the equipment helps conserve strategic materials.

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An important factor in this is their application of the Lukenomics principle. For Lukenomics combines their experience and that of leading designers and engineers with Lukens' specialized knowledge of materials, their production and application.

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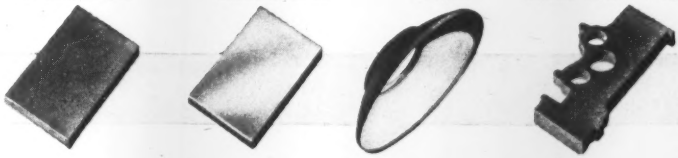
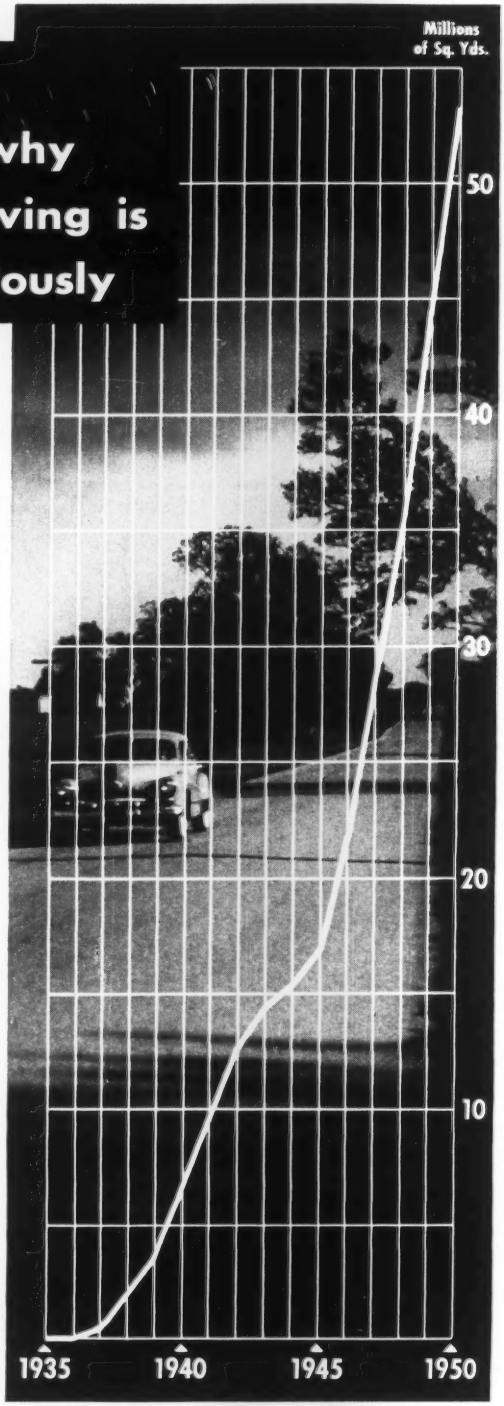
STEEL PLATE **CLAD STEELS** **HEADS** **STEEL PLATE SHAPES**



4 reasons why SOIL-CEMENT paving is expanding tremendously



The graph on the photo of a soil-cement road* at the right shows accumulated yardages of roads and streets paved with soil-cement since 1935, when scientifically controlled soil-cement paving was introduced.

As the graph indicates, soil-cement paving has soared in the last five years. There were 36,436,144 sq. yd. built from 1946 through 1950. That is more than twice the yardage built in the previous 11-year history of soil-cement paving. During that period (1935 through 1945) 16,823,014 sq. yd. were built.

There are four significant reasons for this amazing growth of soil-cement paving:

1. IT IS ECONOMICAL. Generally about 85 per cent of the required materials is soil on the site or nearby.

2. CONSTRUCTION IS FAST. Construction or maintenance crews quickly learn the simple operations of building good soil-cement pavement. Though scientifically controlled, the process is fast and easy. Experienced crews have built as much as a mile a day.

3. IT IS DURABLE. In all parts of the country—from 40°F. below zero to more than 100° and from arid regions to places exceeding 60 in. of rainfall a year—soil-cement paving has proved its durability through long years of service. Practically all of the soil-cement pavement built since 1935 is still in use, rendering dependable, all-year, all-weather service.

4. MAINTENANCE IS LOW. Wherever maintenance records have been kept the extremely low cost of maintaining soil-cement pavement has been demonstrated. Usually an occasional seal coat applied over the bituminous surface is the only maintenance required.

For more information about economical, durable soil-cement pavement write for free, illustrated literature. It is distributed only in the U.S. and Canada.

*Soil-cement pavement consists of a soil-cement base and a bituminous surface.

PORTLAND CEMENT ASSOCIATION

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 6 Maine June 12 Massachusetts

BIDS ASKED—BUILDINGS

▲ **Mass., Springfield** — HOSPITAL — B.A. 6/14 — City, Pub. Welfare Dpt., hospital, nurses home, dormitories, boiler house at Springfield Municipal Hospital, $4,500,000. Extended date. CD 4/2.

LOW BIDDERS—BUILDINGS

▲ **Bonvicine Bldg. Co.,** 1500 S. Main St., Torrington, Conn. Low Bidder. **$1,349,000,** HIGH SCHOOL, west of Worthington Ridge, BERLIN, CONN. Town, Town Hall, Berlin, Conn. Bids May 17. CD 4/30.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Lane Constr. Co.,** 37 Colony St., Meriden, Conn. Contract Awarded. **$1,000,000.** fuel storage, dispensing sys., alert and parking aprons, taxiway, high intensity lighting sys. for runway and taxiway, driveways, parking areas and walks for airmen's housing area and for bachelor officer's quarters, at Westover Air Force Base, CHICOPEE FALLS, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, 15, Mass. CD 4/9.

CONTRACTS—BUILDINGS

▲ **George A. Fuller Co.,** 11 Beacon St., Boston, Mass. Contract Awarded. **$2,250,000.** DORMITORY group, WELLESLEY, MASS. Wellesley College, Wellesley, Mass. CD 3/15.

▲ **Southern New England Constr. Co., Inc.,** 983 Main St., Hartford, Conn. Contract Awarded. **$1,085,000,** SCHOOL, Slater Rd., NEW BRITAIN, CONN. City Bd. Educ., New Britain, Conn. Bids May 3, awarded May 21. CD 5/15, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 12, 19 Maryland

STREETS AND ROADS

June 12 Maryland

† **N. Y., Malta**—FACILITIES—B.A. 6/13—U. S. Eng., 80 Lafayette St., New York, Zone 13, addnl. facilities, Hermes Proj. Part IV. Eng 30-075-51-647. $750,000-$1,000,000. Plans deposit $15. CD 11/30.

BIDS ASKED—BUILDINGS

▲ **Md. Annapolis**—SCHOOLS—B.A. 6/13—Anne Arundel Co. Bd. Educ., 207 Hanover St., 1 story, 60x280 ft. brick, Brooklyn Park Elementary School and Fort Meade Elementary School, Odenton, $1,000,000. Plans deposit $100. Edw. H. Glidden Jr., 414 Equitable Bldg., Baltimore, archt. Jas. Posey & Assoc., 10 E. Pleasant St., Baltimore, mech. engrs. Van Rensselaer Saxe, 1701 St. Paul St., Baltimore, struct. engr. CD 1/13/50.

▲ **N. Y., Farmingdale**—HIGH SCHOOL—B.A. 6/14—Bd. Educ., Union Free School School Dist. 22, Farmingdale, high school, Conklin and Cherry Sts. $2,714,000.

LOW BIDDERS—BUILDINGS

▲ **Wilaka Constr. Co., Inc.,** 11 E. 44 St., New York 17, N. Y. Low Bidder. **$16,425,000,** general constr.*** **Jesse E. Kahn,** 131 W. 21 St., New York 11, N. Y., **$2,083,678,** plumbing***Dierks Heating Co.,** 43-32 33 St., Long Island City, N. Y., **$1,798,415,** heating and ventilating***ARC Electrical Constr. Co., Inc.,** 739 Second Ave., New York 16, N. Y., and **Rao Electric Equip. Co.,** 150 E. 41 St., New York 17, N. Y., **$1,817,140,** electric for East Harlem General HOSPITAL (Mentropolitan Hospital Replacement) (97 to 99) Sts., 1 to 2 Aves., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids May 29. CD 5/25.

CONTRACTS—BUILDINGS

▲ **Depot Constr. Corp.,** 119 W. 57 St., New York 19, N. Y. Contract Awarded. **$9,432,000,** Contr. 1, demolition, general constr. work; elevators and dumbwaiters, metal equip, top soiling and planting*** **Far Plumbing Co.,** 2018 Crotona Parkway, New York 60, N. Y., **$1,055,555,** Contr. 2, plumbing and kitchen equip***Heating Maintenance Corp. of New York,** 220 E. 138 St., New York 51, N. Y. **$1,116,260,** Contr. 3, heating, ventilating, air-conditioning, refrigerator work***John G. Hellman Co., Inc.,** 391 Fulton St., Brooklyn 1, N. Y., **$838,524,** Contr. 4, electrical and lighting fixtures for NURSES' SCHOOL and RESIDENCE at Bellevue Hospital, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Grand total $12,442,339. Bids Apr. 18. CD 5/1, under LB.

▲ **Walter Kidde Constructors, Inc.,** 140 Cedar St., New York 6, N. Y. Contract Awarded. Approx. **$15,000,000.** electronics equip. PLANT, UTICA, N. Y. General Electric Co., River Rd., Schenectady, N. Y. CD 2/23.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Va., Portsmouth** — HOUSING — B.A. 6/12 — Portsmouth Redevelopment & Housing Auth., Portsmouth, Proj. VA 1-4, 400 housing units. $3,500,000. Plans deposit $50. William, Colle & Blanchard, Melson Bldg., Newport News, archts. CD 11/21/49.

▲ **Va., Fort Eustis**—HOUSING—B.A. 6/13—U. S. Eng., foot of Front St., Norfolk, construct, manage, finance, 412 housing units. Approx. $3,708,000. Extended date. E. Tucker Carlton, 1009 E. Main St., Richmond, archt. CD 5/1.

▲ **N. C., Winston-Salem**—HOUSING—B.A. 6/14—Winston-Salem Housing Auth., Reynolds Bldg., Proj. NC 2-3, 240 housing units in Piedmont Park. $1,900,000. Plans deposit $25. Northrup & O'Brien, 1205 Reynolds Bldg., archts. CD 4/26.

▲† **Va., Norfolk**—BARRACKS, MESS HALL, etc.—B.A. 6/15—Pub. Wks. Office, Sixth Naval Dist., Charleston, S. C., 1 permanent brick and concrete barracks bldg., mess hall and training bldg. Approx. $3,500,000-$4,000,000.

▲ **Ga., Columbus**—HOUSING—B.A. 6/19—Columbus Housing Auth., 438 Martin Bldg., 108 housing units, Project GA 4-7, $1,000,000. CD 7/20/50.

▲† **Tenn., Tullahoma**—SHOP-INSTRUMENT BLDG.—B.A. 6/19—U. S. Eng., Tullahoma, model shop-instrument bldg. $2,000,000. CD 11/14/49.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **George D. Auchter Co.,** foot of E. 29 St., Jacksonville, Fla. Low Bidder. **$1,903,000,** constr. mooring piers, steel pile bulkheads, marginal wharf for mooring destroyers, dredging, filling, grading, and subgrade, incl. paving access roads in outlying station Gayport Carrier Base. NOY 22493, Spec. 25136, MAYPORT, FLA. Dpt. Navy, Box 365, Naval Base, Charleston, S. C. Bids May 23. CD 4/24.

▲ **Shelby Const. Co.,** Shrine Bldg., Memphis, Tenn. Low Bidder. **$3,986,777,** construct, manage, finance, 540 brick, rein.-con. HOUSING units, for enlisted men, MEMPHIS, TENN. Pub. Wks. Office, Sixth Naval Dist., Naval Base, S. C. W. C. Lester, Dermon Bldg., Memphis, Tenn., archt. Bids May 23. CD 4/30.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Groves, Lundin & Cox, Inc.,** 310 Wesley Temple Bldg., Minneapolis, Minn., Contract Awarded, **$2,822,787,** excavation of forebay, tunnels and tailrace, Saddle Dikes 1 and 2 and access road at Buford Dam, GEORGIA. U. S. Eng., P.O. Box 1169, Mobile, 7, Ala. Bids May 22, awarded May 29. CD 5/25, under LB.

▲† **Dickerson, Inc. and D. W. Winkelman,** Monroe, N. C., Contract Awarded, **$2,646,054,** East-West Runway System at Hunter Air Force Base, SAVANNAH, GA. U. S. Eng., P.O. Box 889, Savannah, Ga. Bids May 22. CD 5/28, under LB.

ATLANTIC Pneumatic TOOLS

Use with your standard power pavement equipment . . . .

THE ATLANTIC PNEUMATIC ROCK BREAKER

Splits Large Rocks and Boulders quickly
No Plugs and Feathers — No Explosives
Nearly 4½ times faster

- Effective quick action in removing stones, boulders and rocks from excavations and ditches.
- Eliminates the slow and costly plug and feather method, and the risky and troublesome use of explosives.
- The specially heat-treated Atlantic Tool Steel used in the Atlantic Pneumatic Rock Breaker gives it the extreme toughness to withstand the severest usage and resist breakage regardless of the hardness of the stone.
- Used with standard power pavement breakers. No tool upkeep. Tougher than any stone. A size for every service.

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Specialists in Tool Steels for chisels, drills, blacksmith tools and Alloy Steels for axles, bolts, pins, pistons and shafts.

Non-tempering tool steels for greater safety and speed.

ATLANTIC STEEL CORP. 1775 BROADWAY, N. Y. 19

CONTRACTS—BUILDINGS

▲ **Alabama Power Co.,** 600 N. 18 St., Birmingham, Ala. Separate Contracts. $10,000,000. steam GENERATING PLANT, 7th unit, GORGAS, ALA. CD 8/29/50.

▲ **E. B. Badger & Sons Co.,** 75 Pitts St., Boston, Mass. Contract Awarded. $7,500,000. expansion REFINERY from 12,000 bbls. to 40,000 bbls. capacity, LAKE CHARLES, LA. Continental Oil Co., Oil & Gas Bldg., Houston, Tex. CD 3/28.

▲ **Hudson Engineering Corp.,** 2711 Danville St., Houston, Tex. and **Procon, Inc.,** c/o Universal Oil Products Co., engr., 310 S. Michigan St., Chicago, Ill. Contract Awarded. $3,300,000. PLANT addn., SHREVEPORT, LA. Atlas Process Co., Jewella Rd., Shreveport, La. CD 5/24.

MIDDLE WEST

LOW BIDDERS—BUILDINGS

▲ **St. Clair County Housing Auth.,** James E. Hayes, exec. dir., 6 St. and Ohio Ave., East St. Louis, Ill., rejected bids, Apr. 23, general constr. 300-unit Roosevelt Homes, $2,410,950; general constr. 100-unit Villa Griffin HOMES, $855,357, EAST ST. LOUIS, ILL. Postponed indefinitely. CD 4/30, under LB.

▲ **J. L. Simmons Co.,** Citizens Bank Bldg., Decatur, 60, Ill. Low Bidder. $2,845,700. General constr.; **Arnold Peterson Co.,** 140 N. Locust St., Centralia, Ill., $379,000 heating, ventilation, refrigeration, for 6 story, part bsmt., rein.-con., brick St. Anthony's Memorial HOSPITAL, EFFINGHAM, ILL. Hospital Sisters of Third Order of St. Francis, Sangamon Rd., Springfield, Ill. Bids May 16. CD 5/15.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Smith Constr. Co.,** 1936 Glenwood Ave., Youngstown, O. Contract Awarded. Approx. $7,000,000. Expand Youngstown Municipal Airport for use as jet fighter base, lengthen southeast-northwest runway to 7,500 ft., parallelling taxiway, ready apron; ready hangar, maintenance and repair hangars, barracks etc., relocate 2 highways Vienna, YOUNGSTOWN, O. U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va.

▲† **A. L. Jackson Co.,** 161 E. Erie St., Chicago, Ill. Contract Awarded. Approx. $2,000,000. Constr. 14 airmen's dormitories and 2 mess halls, at O'Hare Field, Northwest of CHICAGO ILL. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill.

CONTRACTS—BUILDINGS

▲ **Arnold Lies,** 1515 ew York St., Aurora, Ill. Contract Awarded, $2,000,000, 2 story, steel, brick, stone, concrete senior HIGH SCHOOL, AURORA, ILL. School Dist. 129, 454 Walnut St., Aurora, Ill. Awarded May 17. CD 5/7, under LB.

▲ **Roland V. Buck, Inc.,** 1225 Tower Ave., Superior, Wis. Contract Awarded. Total est. $3,100,000 incl. equip. general contract electric PLANT addn., SUPERIOR, WIS. Superior Water, Light & Power Co., Superior, Wis.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 12 Iowa
STREETS AND ROADS
June 12 Iowa June 15 Minnesota

▲ **Colo., Colorado Springs**—B.A. 6/14—City, City Hall, Blue River Diversion Proj. involves 8,000 ft. tunnel, etc., near here. $9,000,000. Sewell Thomas, 2000 S. Acoma St., Denver, engr. and archt.

▲ **Tex., San Antonio**—AIRPORT ADMINISTRATION—B.A. 6/14—City, City Hall, Military Plaza, administration and terminal for municipal airport. Approx. $1,250,000. Plans deposit $50. Atlee B. & Robert M. Ayres, Transit Tower Bldg., archts. Frank T. Drought, 117 W. Pecan St., engr. Leigh Foster Assoc., South Bend, Ind., engrs. CD 7/20/50.

BIDS ASKED—BUILDINGS

▲ **Ind., Indianapolis**—HIGH SCHOOL—B.A. 6/12—Bd. School Comrs., N. V. Bailey, bus. dir., 150 N. Meridian St., Zone 4, five IL and 2 story irregular, brick, stone high school buildings, $3,000,000. Bevington, Taggart & Fowler, 730 Ind. Pythian Bldg., Zone 4, mech. engrs. D. A. Bohlen & Son, 930 State Life Bldg., Zone 4, archts. CD 9/22, under LB.

▲ **Kan., Topeka**—HOSPITAL—B.A. 6/14—City, City Hall, Stormont-Vail Hospital addn. $3,000,000, nurses home, $300,000. Griest & Ekdahl, New England Bldg., archts. J. A. Hamilton & Assoc., 520 S. E. Essex St., Minneapolis, Minn., assoc. archts. CD 11/29/49.

▲ **Ark., Little Rock**—INFIRMARY—B.A. 6/19—Sisters of Charity, 1000 High St., Little Rock, St. Vincents Infirmary. $5,500,000. CD 3/30/50.

▲ **Tex., Austin**—HOUSING—B.A. 6/19—Austin Housing Auth., 302 Chalmers St., Tex. 1-5, 300 units housing, $2,265,000. Plans deposit $50. Giesecke, Kuehne & Brooks, 121 E. 8 St., archts. CD 4/10/50.

▲ **Tex., Baytown**—REFINING UNIT—Bids Asked Humble Oil & Refining Co., Baytown, new alkylation refining unit. $2,000,000. CD 5/23.

▲ **Tex., Levelland**—PLANT—Bids Asked—Levelland Refining Co., Levelland, aviation gasoline plant. $2,441,763. CD 3/22.

▲ **Tex., Longview**—STEEL MILL—Bids Asked—R. G. LeTourneau Co., Longview, steel mill. $4,500,000. CD 5/23.

▲ **Tex., Sweeny**—PLANTS—Bids Asked—Phillips Petroleum Co., Bartlesville, Okla., aviation alkylate unit and special alkylation feed stocks unit, $3,630,200; basic refining unit refinery, $4,787,200. CD 5/23.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **Larson Constr. Co.,** 690 W. Locust St., Dubuque, Ia., Low Bidder, Sect. B, $120,300 Sect. C, $179,956; **James McHugh Constr. Co.,** 6449 S. South Park St., Chicago, Ill., Sect. D, $2,523,091, storm sewers, DUBUQUE, IA. City, Dubuque, Ia. Bids May 14.

▲† **Knutson Constr. Co.,** 2233 Commerce Bldg., Houston, Tex. Low Bidder, $1,387,000, est. $1,864,000. 80,000 sq. ft., masonry, steel frame, airport administration bldg., HOUSTON, TEX., City, City Hall, 900 Brazos St., Houston, Tex. Bids May 23.

▲† **Hoops Constr. Co.,** Twin Falls, Idaho. Low Bidder. $953,432. Schedule I, 24.5 mi. road along upper half of winding 34 mi. Hungry Horse Reservoir; **Miller & Strong, Inc.,** Eugene, Ore., $1,179,410, Schedule II, covering 22.5 mi. road exten. southeast from point 0.4 mi. upstream from Hungry Horse Dam to end of Schedule I, MONTANA. Bureau Reclamation, Hungry Horse Govt. Camp, Columbia Falls, Mont. Bids May 22. CD 4/26.

LOW BIDDERS—BUILDINGS

▲ **Koppers Co., Inc.,** Koppers Bldg., Pittsburgh, Pa. holding up project for a time. CHEMICAL PLANT, PORT ARTHUR, TEX. $12,000,000. CD 3/21.

▲ **Occy Corp.,** Route 2, Box 2935, Rio Linda, Calif. Low Bidder, $2,000,000. construct, manage, finance, 235 masonry family unit HOUSING, LAS CRUCES, N. M. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids May 23.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Atlantic, Gulf & Pacific Dredging Co.,** Citizens Bank Bldg., Houston, Tex., Contract Awarded. $1,287,454, dredging Houston Ship Channel from Lynchburg to vicinity Shell Refinery and Hunting Bayou to Turning Basin, Inv. No. CIVENG 41-243-51-80, Harris Co., TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids Mar. 30, awarded May 21. CD 4/10, under LB.

▲† **Texas Constr. Co.,** Box 1384, c/o Reserve Loan Life Bldg., Dallas, Tex. Contract Awarded. $1,578,733. outlet works, Garza, Little Elm Dam and Reservoir, near Lewisville, Denton Co., Inv. No. CIVENG 41-443-51-31, TEXAS. U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, Tex. Bids Apr. 26, awarded May 24. CD 5/2, under LB.

▲ **Central New Mexico Electric Co-operative,** Corona, N. M., Own Forces. $1,560,000. 418 mi. rural distr. lines 31 mi. 34 kv transmission line, addnl. generating facilities and sys. imprvs., Lincoln Co.; $120,000, 60 mi. rural distr. lines and sys. imprvs., Lincoln Co., NEW MEXICO. Hollis Harris, Amarillo, Tex., engr. CD 2/23/50 and 1/26.

CONTRACTS—BUILDINGS

▲ **Swenson Constr. Co.,** 3305 Terrace St., Kansas City, Mo. Contract Awarded. $1,000,000. BUSINESS bldg., 11 and Jefferson Sts., KANSAS CITY, MO. American Hereford Assn., 11 and Central Sts., Kansas City, Mo. CD 1/9.

▲ **Ditmars, Dickman & Pickens Co.,** Gazette Bldg., Little Rock, Ark. Contract Awarded, $2,000,000, glass mfg. PLANT, on Lake Catherine, near HOT SPRINGS, ARK. Westinghouse Electric Co., MacArthur Blvd., Bloomfield, N. J.

▲ **Loring Quarries, Inc.,** 11 S. 5 St., Kansas City, Kan. Contract Awarded. $1,000,000. 500,000 sq. ft. WAREHOUSE on 540 acre site, Lenape, KANSAS CITY, KAN. National Storage Co., E. P. Conlarn, Bonner Springs, Kan.

▲ **T. C. Bateson Co.,** Irwin-Keasler Bldg., Dallas, Tex. Contract Awarded, $3,922,100. Construct white HIGH SCHOOL and Negro HIGH SCHOOL, GALVESTON, TEX. Galveston Independent School Dist., Galveston, Tex., Bids May 22. CD 5/23, under LB.

▲ **C. L. Browning, Jr.,** Travis Bldg., San Antonio, Tex., Contract Awarded, Approx. $4,500,000, 600 HOUSING units at LACKLAND AIR FORCE BASE, TEX., by Winston, Muss & Penn (sponsor), 242 Croyden St., San Antonio, Tex., for Dpt. Air Force, Lackland Air Force Base, (Br. San Antonio), Tex. Irwin Gerber, 11 Commerce St., Newark, N. J., archt. Frank T. Drought, 117 W. Pecan St., San Antonio, Tex. consult. engr. CD 12/6.

▲ **H. B. Foster,** 4126 16 St., Port Arthur, Tex., Contract Awarded. $1,041,125, est. $1,100,000. 18 two story bldg. to contain 148 DWELLING units for Negroes, brick veneer, concrete slab fdn. constr., PORT ARTHUR, TEX. Port Arthur Housing Auth., Port Arthur, Tex. Bids May 15, awarded May 18. CD 5/23, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 20 California
STREETS AND ROADS
June 20, 21 California

BIDS ASKED—BUILDINGS

Ariz., Flagstaff—STUDENT UNION—B.A. 6/20—State of Arizona, Arizona State College, Flagstaff, student union, dining hall and auditorium, Arizona State College. $800,000. Lescher & Mahoney, Title & Trust Bldg., Phoenix, archts. CD 4/30.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Guy F. Atkinson,** Cascade Bldg., Portland, Ore. Low Bidder. $1,393,008. Construct Willow Creek Dam, MEDFORD, ORE. City, City Hall, Medford, Ore. Bids May 24. CD 5/14.

Peterson & Baker, 2509 Gardner Pl., Glendale, Calif. Low Bidder. $913,870. 2 rein.-con. bridges, storm drains, etc. on Hollywood Freeway at Bronson Ave. and Gower St., Los Angeles Co., CALIFORNIA. State Div. Hys., 120 S. Spring St., Los Angeles, Calif. CD 4/26.

LOW BIDDERS—BUILDINGS

Alliance Constr. Co., 308 Monterey Rd., South Pasadena, Calif. Low Bidder. $829,414, est. $475,000. OFFICE and GARAGE addns., LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids May 16. CD 5/2.

▲ **Barrett & Hilp,** 918 Harrison St., San Francisco, Calif. Low Bidder, $4,299,000, 250-bed HOSPITAL at 28 and University and Horace Sts., SAN JOSE, CALIF. Sisters of Charity, O'Connor Hospital, 105 Race St., San Jose, Calif. Bids May 23. CD 5/11.

CONTRACTS—BUILDINGS

▲ **The Austin Co.,** 777 E. Washington St., Los Angeles, Calif. Contract Awarded. $1,000,000. 1 story, steel frame, brick, mfg. PLANT, MAYWOOD, CALIF. General Refractories of Philadelphia, 3201 Fruitland Ave., Vernon, Calif. Awarded Mar. 1.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—OUTSIDE UTILITIES, etc.—B. A. 6/20—U. S. Eng., New Washington Hotel, Seattle, Wash., outside utilities, Army Construction area, Eielson Air Force Base, Inv. No. S95-507-51-66; water treatment and storage facilities, sewage treatment plant, at Ladd Air Force Base and Eielson Air Force Base, Inv. No. S95-507-51-100; outside facilities, Army Construction Area, Ladd Air Force Base, Inv. No. S95-507-51-104. Plans deposit $50 each. CD 11/27.

BIDS ASKED—BUILDINGS

† **Alaska, Whittier**—PLANT—B.A. 6/14—U. S. Eng., New Washington Hotel, Seattle 1, Wash., permanent heating and power plant incl. moving equipment from Dutch Harbor, S95-507-51-94. Plans deposit $100. Extended date. CD 4/17.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Stock & Grove,** Anchorage, Alaska. Low bidder, $589,434. Grading, bridges 1.499 mi. Seward-Anchorage Highway, Sect. A3, ALASKA. Bureau P. Roads, Dpt. Commerce, Juneau, Alaska, Bids May 24.

U. S. POSSESSIONS

BIDS ASKED—HEAVY CONSTRUCTION

† **Virgin Islands, St. Thomas**—B.A. 6/29—Dpt. Interior, P. O. Box 479, St. Thomas, Virgin Islands, WW bldg.

BIDS ASKED—BUILDINGS

† **Virgin Islands, St. Thomas**—HOSPITALS—B.A. 6/26—Dpt. Interior, P. O. Box 479, St. Thomas, Virgin Islands, 4 hospitals to contain 195 beds.

CANADA

CONTRACTS—HEAVY CONSTRUCTION

▲ **Marwell Constr. Co. Ltd.,** 1500 West Georgia St., Vancouver, B. C. Approx. $6,500,000. Contract Awarded, 1 story, 500x1,500 ft., R.C.A.F. WAREHOUSE, NAMAO, ALTA. Defence Constr. Co. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Apr. 24, awarded May 22. CD 4/18.

CONTRACTS—BUILDINGS

▲ **Dinsmore-McIntire Ltd.,** 1204 Canada Bldg., Windsor, Ont. Contract Awarded. Approx. $3,200,000, third extension of hydro STEAM PLANT at Sandwich West Twp., 86x276 ft., rein.-con., brick, general station addn., WINDSOR, ONT. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont.

▲ **Foundation Co. of Canada Ltd.,** 1900 Sherbrook St. N., Montreal, Que. Contract Awarded, Approx. $3,000,000 incl. equipment. PLANT EXPANSION program, LA TAQUE, QUE. Brown Corp., La Tuaue, Que. CD 2/8/50.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

South Africa, Mbabane—B.A. 6/22—Secretariat, Swaziland Govt., Mbabane, Bbabane electricity extension scheme, Contr. A, 140 kw hydro-electric generating plant, penstock power station switchgear and transformers. George Grewett, Manlin House, 17 Harrison St., Johannesburg, engr.

Portuguese East Africa, Beira—B.A. 8/2—Companhia das Aguas da Beira, S. A., Companhia De Mozambique Bldgs., water pumping station on River Punque, near Beira-Rhodesia Rd., incl. feeder canal, feeder reservoir, rein.-con. pumping station.

(Proposed Advertisements see pp. 103 to 106)

OFFICIAL PROPOSALS

Bids: June 20, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on June 20, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

OFFICIAL PROPOSALS

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Hamilton	FASS 51-15	Sabattis-Little Tupper Lake, Pt. 2 Proj. No. S82(4)	4 31	Bit. Macadam, Opt.	$4,500 Plans $10	$76,000
Oneida	FAC 51-2	Rome-West Artery (W. Whitesboro Street-Black River Blvd.) FAC 50-9 Proj. U635(3) Cont. 2	0.72	Traffic Control System	$2,000 Plans $10	$36,000
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weigh Lock Building, Syracuse 1, N. Y.				
Wayne	FARC 51-27	Lyons Village: Geneva & Montezuma Sts. S. H. 5653 Lyons Village: Geneva St., S. H. 1701 Lyons-Clyde, S. H. 8027 Clyde Village: Genesee St., S. H. 5676 Proj. F18(3)	6 78	Asph. Conc. Type 1A, Opt.	$15,000 Plans $15	$275,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FARC 51-28	Alden-Darien Center, S. H. 1054 Darien Center-Alexander, Pts. 1 & 2, S. H. 1557-1661 Alexander-Canawaugus, Pts. 1, 2, 3 & 3A, S. H. 8447-8431-8450-9208 Proj. F652(5) & F611(13)	19 96	Asph. Conc. Type 1A, Opt.	$45,000 Plans $10	$842,000
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	GISP 51-2P	Grand Island State Parkway	3 20 (Serv. Rd.) 4 13 (Pkwy.)	8" Two Crse. Cem. Conc. Pavt. 24' Wide = 3 88 Mi. Misc. Work = 0 25 Mi. (Service Rds. Bit. Mac. Pen. Method, Ty. 1 = 3.20 Mi.) 3 Sp. R. C. Slab = 102. 5' Tot.	$65,000 Plans $25	$1,185,000
	GISP 51-3	(West River Parkway) GISP49-1) Grand Island State Parkway (West River Parkway, Pt. 2)				
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Chemung	FARC 51-29	Lowman-Waverly, Pts. 1 & 2. S. H. 5048-5218 Proj. F339(5)	4 66	Asph. Conc. Type 1A, Opt.	$14,000 Plans $15	$257,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Columbia	FARC 51-30	Hudson-Brick Tavern-Ghent, S. H. 9087 Proj. S370(1)	1 79	Asph. Conc. Type 1A, Opt.	$2,500 Plans $10	$51,000
Orange	FARC 51-31	Scotts Corners-Burnside, S. H. 414 Proj. S371(1)	1 40	Asph. Conc. Type 1A, Opt.	$4,000 Plans $10	$70,000
Ulster & Greene	CT 51-1	Catskill Thruway, C. T. 46-1, 2 & 3, C. T. 43-1 (Including Access Drives and Service Roads)	7.64	Roadside Improvement	$1,500 Plans $10	$27,000
Ulster	FARC 51-32	Saugerties-Woodstock, Pt. 1, S. H. 37 Proj. F650(5)	1 34	Asph. Conc. Type 1A, Opt.	$3,500 Plans $10	$60,000
Westchester	FARC 51-33	Mamaroneck Village, S. H. 5376-5726 Proj. F932(4)	2.01	Asph. Conc. Type 1A, Opt.	$7,000 Plans $10	$122,000
Westchester	SMRP 51-1	Saw Mill River Parkway (Mt. Kisco-Katonah, Pt. 1)	(Access) 1.23 (Pkwy.) 3.04 (Access)	Rds. Grading = 0 98 Mi. Rds. Asph. Conc. Ty. 1A, Opt. = 0 25 Mi. Grading & Structures = 3 04 Mi. Hy. Sep. 60'—8½" Rig. Fr. Hy. Sep. 70' Rig. Fr. Hy. Sep. 3. Sp. Alpha Beam and Pl. Girder 200'-6" Tot. Alpha Royalty = $329 40	$85,000 Plans $50	$1,473,000
Westchester	RC 51-34	Forty-eight Various Highways in South Westchester County	....	Three Removal & Pruning	$500 Proposal $5	$10,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Suffolk	N. Sag. S. P. 51-3P	Northern-Sagtikos State Parkway Extension, Cont. 3	1.40 (Access) 3.95 (Pkwy.)	9" Unreinf. Cem. Conc. Pavement 2 at 25'	$85,000 Plans $50	$1,595,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3441) will be received by Bureau of Reclamation, Loveland, Colorado, until June 21, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, canal lining, tunnel and structures, Station F-7+31.5 to Station 53+70.25, Horsetooth Feeder Canal, Colorado-Big Thompson Project, Colorado. The work is situated about 8 miles west of Loveland, Colorado. Principal items are approximately: excavation, 364,400 cu. yds.; concrete 14,500 cu. yds.; furnishing and handling cement, 22,000 bbls.; furnishing and placing reinforcement steel, 717,000 lbs.; furnishing and installing metalwork, 21,000 lbs.; and other work. Time allowed for completion will be 600 days. For particulars, address Bureau of Reclamation, Loveland, Colorado; or Building 1-A, Denver Federal Center, Denver, Colorado.

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Squares	½"	⅝"	¾"
Flats	2"x¼"	2½"x5/16"	2½"x⅜"
Concrete Bars	⅜"	½"	⅝"
Price	$44.90	$60.30	$68.50

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1863 Tenth St., Oakland 20, Calif.

U. S. Government
(Continued from page 103)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-2437) will be received by the Bureau of Reclamation, Denver, Colorado, until June 21, 1951, and then publicly opened for furnishing 4 float-operated radial-gate hoists for Cachuma Project, California. Delivery is desired within 365 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: June 20, 1951

Construction of Footings and Foundation Walls

HOUSING AUTHORITY OF BALTIMORE CITY

The Housing Authority of Baltimore City will receive sealed bids for clearing and preparing of site, rough grading, excavation for buildings, and the construction of footings and foundation walls for all of the dwelling units of the Westport Homes (Extension) Project, located at Maisel and Nevada Streets, Baltimore, Maryland, (designated as Part A of Housing Project MD 2-13), until 2:30 P.M., (Eastern Daylight Saving Time), on the 20th day of June, 1951, at 709 East Eager Street, Baltimore 2, Maryland, at which time and place all bids will be publicly opened and read aloud.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Housing Authority of Baltimore City at 709 East Eager Street, Baltimore 2, Maryland, and at the office of F. L. W. Moehle and Fenton & Lichtig, Architects, at 2514 North Charles Street, Baltimore 18, Maryland, and at the office of the Building Congress and Exchange of Baltimore at 2301 North Charles Street, Baltimore 18, Maryland.

Contractors may obtain copies of the documents by depositing $50.00 with the Housing Authority of Baltimore City for each set of documents so obtained. Such deposit will be refunded to each Contractor who returns the plans, specifications and other documents in good condition within 10 days after bid opening. The deposit must be in the form of a check, made payable to the Housing Authority of Baltimore City. Cash is not acceptable.

A Cashiers' check or bank draft, payable to the Housing Authority of Baltimore City, negotiable U. S. Government bonds, or a bid bond binding the bidder and acceptable sureties to the Housing Authority of Baltimore City in an amount equal to five percent (5%) of the bid shall be submitted with each bid.

The successful bidder will be required to furnish and pay for satisfactory performance, payment, and highways bonds.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Specifications must be paid on this project.

The Housing Authority of Baltimore City reserves the right to reject any or all bids or to waive any informalities in the bidding. No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the Housing Authority of Baltimore City.

HOUSING AUTHORITY OF BALTIMORE CITY
OLIVER C. WINSTON
Executive Director

Bids: June 21, 1951

Additional Directional Signs

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PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.027

Sealed proposals for the furnishing and installation of additional directional signs in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A. M. Thursday, June 21, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 7, 1951.

Bids: June 20, 1951

Pumping Stations

Sealed bids will be received by the Board of Commissioners of Springfield Township, Montgomery County, Pa., in the Township offices, 402 Bethlehem Pike Erdenheim, Pennsylvania (Philadelphia 18, Pa.) until 8:00 P.M. Eastern Daylight Saving Time, June 20, 1951 for the following contracts:

4-A—Pumping Station, Grit Chamber & Force Main—General, Structural.
4-B—Pumping Station, Grit Chamber & Inside Pipe Lines—Mechanical.
4-C—Pumping Station—Heating & Ventilating.
4-D—Pumping Station—Plumbing & Water Line.
4-E—Pumping Station—Electrical.
5—Intercepting Sewer and Outfall Line.
6—Branch Sewers—Flourtown District.

Plans, specifications and contract documents may be seen at the offices of the Township Secretary at the above address and obtained at the office of George B. Mebus, Consulting Engineer, Northwestern National Bank Building, Glenside, Pennsylvania upon deposit of $25.00 each for Contract 4-A, Contract 5, and Contract 6 and $15.00 each for Contract 4B, Contract 4-C, Contract 4D, and Contract 4E. Of the above amounts $15.00 each will be refunded for Contracts 4A, 5 and 6 and $10.00 each will be refunded for Contracts 4-B, 4-C, 4-D and 4-E upon return of plans and specifications in good condition to the Consulting Engineer office by 5:00 P.M., Eastern Daylight Saving Time, July 1, 1951.

A certified check or bid bond approved by the Commissioners in the amount of Five (5%) per cent of the amount of the total bid tendered made payable to the Board of Commissioners of Springfield Township, shall accompany the bid tendered. The certified checks or bid bonds will be returned after the contracts and bonds have been executed.

The Board reserves the right to reject any or all bids and waive formalities or take such other action that it may deem to be in the best interest of the Township.

James Fulginiti
Township Secretary

0—50539
April 1951

Bids: June 19, 1951

New Jersey Turnpike Authority

Trenton, N. J.

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACTS NOS. 82, 82A and 82B

The work to be done under these Contracts comprises the installation of roadway and area lighting for service areas and interchanges along the Turnpike, and other work incidental thereto, all in connection with the construction of the New Jersey Turnpike.

Contract No. 82A includes four (4) service areas and three (3) interchanges all in Salem, Gloucester and Camden Counties. Contract No. 82B includes three (3) service areas and (4) interchanges, all in Burlington and Mercer Counties

Principal items of work for Contracts Nos. 82A and 82B include:

Contract No. 82A—Contract No. 82B: Trenching & Backfilling, 34,000 lin. ft., 35,500 lin. ft.; Asbestos-Cement Conduit, 26,700 lin. ft., 30,000 lin. ft.; Galvanized Wrought Iron Conduit, 7,900 lin. ft., 6,100 lin. ft.; Underground Series Lighting Conductor, 74,500 lin. ft., 77,500 lin. ft.; Lighting Standards, 170 units, 158 units; Luminaire Installations, 170 units, 158 units; Constant Current Transformer Installation 8 units, 7 units.

Principal items of work for Contract No. 82 equal the sum of the quantities listed for Contracts Nos. 82A and 82B.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey until 10:30 o'clock, Eastern Daylight Saving Time on the morning of June 19, 1951, and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey until 11:00 A. M. Eastern Daylight Saving Time, on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their Proposal a revised financial statement and a statement of plant and equipment.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after May 29, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York, New York.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications, for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) per cent of the amount of the proposal, but not less than $5000.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the hour named. Where proposals are submitted for more than one contract, one check and one bond based on the largest amount of work included in a combination of proposals will be sufficient. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plan and equipment statement to be submitted with the proposal and of the special addressed envelope are furnished in detached form with the contract documents. Bidders submitting proposals on more than one of the above contracts are required to submit only one financial statement and only one statement of plant and equipment.

The Contract will be awarded or the proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

THE NEW JESEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

May 23, 1951

Bids: June 18, 1951

Conference Room Alterations in Rooms No. 1531 and 1537

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT EXD-120.038

Sealed proposals for performing Conference Room alterations in Rooms No. 1531 and 1537 of the Port Authority Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, June 18, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 7, 1951.

Bids: June 18, 1951

Grading, Paving and Landscaping at Fire Pumping Station

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-200.001

Sealed proposals for grading, paving and landscaping at the Fire Pumping Station at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, June 18, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 7, 1951.

(Continued on page 105)

OFFICIAL PROPOSALS
(Continued from page 104)

Bids: June 20, 1951

State Office Building

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS
AND HIGHWAYS
STATE HOUSE ANNEX
CONCORD, NEW HAMPSHIRE
NOTICE TO CONTRACTORS

Sealed proposals will be received at this office until 2 o'clock P.M. Daylight Saving Time on the 20th day of June, 1951 for the construction of a new State Office Building in Concord, New Hampshire.

The project consists of a 4-story building with basement and two 2-story wings. Construction is of reinforced concrete; Heating and Ventilating Work, Plumbing and Electrical Work and Fixtures are included. The steam for heating will come from a central heating plant.

A schedule of the minimum wages for all labor classifications as determined by the N. H. Commissioner of Labor, in accordance with Chapter 214 of the Revised Laws, is included in the "Information for Bidders."

Plans and specifications may be seen at the office of the Commissioner, Department of Public Works and Highways, the office of the Architects, 998 Farmington Avenue, West Hartford, Connecticut, at the office of the Associated General Contractors of N. H., 3 Pleasant Street, Concord, New Hampshire, at the office of the F. W. Dodge Corp., Park Square Building, Boston, Mass. and at the office of Gaineys' Construction Newsletter, 89 State Street, Boston, Mass. Plans, specifications and the proposal forms may be obtained at the office of the Commissioner, Department of Public Works and Highways in Concord, N. H. and at the Office of the Architects in West Hartford, Conn. upon the deposit of $50.00 for each set taken. (Cash will not be accepted; checks should be made payable to F. D. Merrill, Commissioner). The full deposit will be refunded to Contractors who submit a bona fide bid on June 20, 1951 if the documents are returned in good condition within ten (10) days of the date of opening bids; $25.00 will be refunded to non-bidders. No incomplete sets will be distributed. Sub-bidders must file duplicate bids with the Architects not later than twenty-four (24) hours prior to the time set for the opening of Bids in order to be entitled to a refund. Any sub-bid mailed to the Architects and postmarked not later than 12 o'clock noon of the day before bid opening will comply with the above condition.

Bids: June 19, 1951

Intercepting Storm Sewer

Sealed bids will be received by the Mayor and Council of the Borough of Butler, Morris County, New Jersey, in the Borough Hall, Butler, New Jersey, until eight o'clock P.M., Daylight Saving Time, on June 19, 1951 to furnish all machinery, labor and materials for the construction of an intercepting storm sewer on Roosevelt Avenue and Northwestern Avenue and over a private rgiht-of-way to the Pequannock River, of approximately 1750 linear feet of reinforced concrete pipe, including 1370 feet of 42 inch reinforced concrete pipe, 380 linear feet of 30 inch reinforced concrete pipe, catch basins at intake chamber, inlets, manholes, concrete headwalls, ripprapping, etc., in accordance with plans and specifications prepared by Newell C. Harrison, Borough Engineer, on file in the office of the Borough Clerk or the office of the Engineer, 98 High Street, Butler, N. J.

Instructions to bidders, specifications, proposal blanks and plans and profiles may be secured from John F. Bormuth, Borough Clerk, or at the office of the Engineer, upon payment of Five ($5.00) Dollars, which will not be refunded.

A certified check for ten per cent (10%) of the total cost of the work, payable to the Collector of the Borough of Butler, must accompany each bid as a guaranty of good faith on the part of the bidder to insure proper execution of the contract and bond.

Should the bidder to whom the contract is awarded by the Borough Council, fail, upon proper notice being given him, to execute said contract and furnish the required bond as stated in the specifications, then the amount of the certified check will be forfeited to the Borough of Butler.

All bids should be submitted in a sealed envelope and marked "Bids for Intercepting Storm Sewer" and presented to John F. Bormuth, Borough Clerk, Butler, New Jersey, not later than the time specified.

The Borough Council reserves the right to reject any or all bids.

John F. Bormuth,
Borough Clerk, Butler, N. J.

OFFICIAL PROPOSALS

Bids: June 22, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Friday, June 22, 1951, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 20 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Deposit	Estimated Cost of Work
		DISTRICT No. 1		
		George L. Nickerson, Dist. Engr., 333 Broadway, Albany 1, N. Y.		
6 Counties and 3 Cities in Dist. No. 1	FARC 51-17	Installation of 11 Automatic Recording Traffic Counters District No. 1 Proj. SWHP 1-(8) DISTRICT No. 2	$750 Plans $10	$13,519
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.		
5 Counties and 2 Cities in Dist. No. 2	FARC 51-18	Installation of 11 Automatic Recording Traffic Counters District No. 2 Proj. SWHP 1-(8) DISTRICT No. 3	$670 Plans $10	$12,133
		Wm. Robinson, Dist. Engr., Weigh Lock Building, Syracuse, N. Y.		
4 Counties and 2 Cities in Dist. No. 3	FARC 51-19	Installation of 9 Automatic Recording Traffic Counters District No. 3 Proj. SWHP 1-(8) DISTRICT No. 4	$570 Plans $10	$10,350
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.		
5 Counties and 2 Cities in Dist. No. 4	FARC 51-20	Installation of 10 Automatic Recording Traffic Counters District No. 4 Proj. SWHP 1-(8) DISTRICT No. 5	$625 Plans $10	$11,320
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.		
4 Counties and 2 Cities in Dist. No. 5	FARC 51-21	Installation of 10 Automatic Recording Traffic Counters District No. 5 Proj. SWHP 1-(8) DISTRICT No. 6	$610 Plans $10	$11,040
		H. F. Brumm, Dist. Engr., 30 West Main Street, Hornell, N. Y.		
5 Counties and 2 Cities in Dist. No. 6	FARC 51-22	Installation of 10 Automatic Recording Traffic Counters District No. 6 Proj. SWHP 1-(8) DISTRICT No. 7	$520 Plans $10	$9,410
		R. F. Hall, Dist. Engr., 444 VanDuzee St., Watertown, N. Y		
4 Counties and 1 City in Dist. No. 7	FARC 51-23	Installation of 8 Automatic Recording Traffic Counters District No. 7 Proj. SWHP 1-(8) DISTRICT No. 8	$455 Plans $10	$8,240
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.		
6 Counties and 2 Cities in Dist. No. 8	FARC 51-24	Installation of 14 Automatic Recording Traffic Counters District No. 8 Proj. SWHP 1-(8) DISTRICT No. 9	$820 Plans $10	$14,868
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.		
5 Counties and 2 Cities in Dist. No. 9	FARC 51-25	Installation of 10 Automatic Recording Traffic Counters District No. 9 Proj. SWHP 1-(8) DISTRICT No. 10	$570 Plans $10	$10,360
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.		
2 Counties and Dist. No. 10	FARC 51-26	Installation of 6 Automatic Recording Traffic Counters District No. 10 Proj. SWHP 1-(8)	$415 Plans $10	$7,494

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Clearing, Snagging, and Excavation: Lac Qui Parle Flood Control Project, Minnesota River, Minnesota, will be received in this office until 2:00 P.M., C.S.T., June 19, 1951, and then publicly opened. Further information upon application.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3438) will be received by the Bureau of Reclamation, Denver, Colorado, until June 21, 1951, and then publicly opened for furnishing motor-driven, horizontal-shaft, centrifugal-type pumping units as follows: (a) 4 units, each with a capacity of 25 cfs under a head of 221 ft.; (b) 2 units, each with a capacity of 34 cfs under a head of 145 ft.; (c) 2 units, each with a capacity of 33.5 cfs under a head of 86 ft.; and (d) 2 units, each with a capacity of 28.5 cfs under a head of 44 ft. for Babcock Pumping Plant, Columbia Basin Project, Washington. Delivery is desired within 360 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

(Continued on page 106)

OFFICIAL PROPOSALS
(Continued from page 105)

Bids: June 25, 1951

Construction of the Administration Building Annex

THE DELAWARE RIVER JOINT COMMISSION, CAMDEN, NEW JERSEY

Sealed bids will be received for the construction of the Administration Building Annex at the office of the Secretary of The Delaware River Joint Commission, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P.M. (Eastern Daylight Saving Time) Monday, June 25, 1951 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for these contracts, which may be obtained upon a deposit of ten dollars ($10.00) each and which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty (30) days after the opening of bids.

Each proposal must be accompanied by a certified or cashiers' check payable to The Delaware River Joint Commission in the amount specified below:

Contract No. 11-A General Construction Work	$20,000
Contract No. 11-B Structural Steel and Iron Work	3,000
Contract No. 11-C Plumbing	3,000
Contract No. 11-D Heating	5,000
Contract No. 11-E Electrical Work	3,000

Each check must be drawn upon a National or State Bank or Trust Company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and must not be enclosed with the sealed bid. The Surety's consent must be shown. The bidder to whom one or more of these contracts be awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of one hundred percent (100%) for each contract.

The Commission will afford prospective bidders an opportunity to inspect the site of the work.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

THE DELAWARE RIVER JOINT COMMISSION
Joseph K. Costello, Secretary.

Bids: June 15, 1951

Construction of Foundations

Chelsea Housing Authority
PHA-Aided Housing Project Mass. 16-2

The Chelsea Housing Authority will receive sealed bids for the construction of foundations for PHA-Aided Housing Project Mass. 16-2, located in the City of Chelsea, Massachusetts, until eight o'clock p.m., E. D. S. T., June 15, 1951, at the office of the Chelsea Housing Authority, Room 311, City Hall, Chelsea, Massachusetts, at which time and place all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish a Performance and Payment Bond, as set forth in the Specifications.

Attention is called to the fact that not less than the minimum salaries and wage rates set forth in a schedule contained in the Specifications must be paid on this Project. Attention is also called to the requirements relating to Workmen's Compensation and conditions of employment.

Contract Documents, including Drawings and Specifications, will be on file and will be available after twelve o'clock noon, E. D. S. T., May 28, 1951, at the office of the Chelsea Housing Authority, Room 311, City Hall, Chelsea, Massachusetts. Copies of the documents may be obtained by depositing Twenty-five Dollars ($25.00) in the form of a certified check, made payable to the Chelsea Housing Authority, for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns all documents in good condition within ten (10) days after opening of all bids.

The Chelsea Housing Authority reserves the right to reject any or all bids of the general bidders and to waive any informalities in bidding if it be in the public interest so to do.

Cash, certified check on, or a certificate of deposit issued by, a responsible bank or trust company, payable to the Chelsea Housing Authority, or a satisfactory bid bond executed by the bidder and a surety company, shall be submitted with each bid as follows:

1. By General Bidders, in the amount of five per cent (5%) of the amount of the General Bid, but not in excess of Fifty Thousand Dollars ($50,000.00).

No bid of a general bidder shall be withdrawn prior to thirty (30) days from the date of approval by the PHA of the award of the contract, provided, however, that any bid of a general bidder may be withdrawn if the contract shall not have been awarded by forty-five (45) calendar days from the date of opening of such bids.

CHELSEA HOUSING AUTHORITY
George A. Innes, Chairman.

Bids: June 21, 1951

Site Improvements

HOUSING AUTHORITY OF BALTIMORE CITY

The Housing Authority of Baltimore City will receive sealed bids for furnishing of all labor and material and performing all work required in the erection of Part A of Cherry Hill Homes (Extension) Project MD 2-12, Baltimore, Maryland, until 2:30 P.M. (Eastern Daylight Saving Time), on the 21st day of June, 1951 at 709 East Eager Street, Baltimore 2, Maryland, at which time and place all bids will be publicly opened and read aloud.

The project consists of 637 Dwelling Units in 84 Buildings, Site Improvements, including Lawns and Planting, Paving (except as listed below to be furnished and installed by the City of Baltimore), Heating and Distribution System (except Central Heating Plant to be furnished and installed under a separate Contract), Plumbing, Gas Piping and Cooking Ranges, Gas Service Extension and Distribution System, Hot Water Distribution System, Sanitary Sewers, Electrical Overhead Service Extension and Distribution System, Interior Wiring and Lighting Fixtures.

The City of Baltimore will install the paving, curbs and storm water inlets in project streets as follows: Bridgeview Road, Carver and Roundview Roads, Cherryland Road, Road "A" (Seagull Avenue and Spelman Road), Road "B" (Bethune Road), Road "C" (Bunche Road), Road "D" (Coppin Court), and Round Road.

The City of Baltimore will install the water distribution system consisting of Mains and Service connections up to and including the meters.

The City of Baltimore will install the storm water sewers in project streets as listed above, but connections to these sewers from project drains are a part of this contract.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Housing Authority of Baltimore City at 709 East Eager Street, Baltimore 2, Maryland, and at the office of Tyler, Ketcham and Myers, Architects, 513 Park Avenue, Baltimore 1, Maryland, and at the office of the Building Congress and Exchange of Baltimore at 2301 North Charles Street, Baltimore 18, Maryland.

Contractors may obtain copies of the documents by depositing $100.00 with the Housing Authority of Baltimore City for each set of documents so obtained. The deposit must be in the form of a check, made payable to the Housing Authority of Baltimore City. Cash is not acceptable. Such deposit will be refunded to each Contractor who returns the plans, specifications and other documents in good condition within 10 days after bid opening.

A Cashiers' Check or Bank Draft, payable to the Housing Authority of Baltimore City, negotiable U. S. Government Bonds, or a Bid Bond binding the bidder and acceptable sureties to the Housing Authority of Baltimore City in an amount equal to five percent (5%) of the bid shall be submitted with each bid.

The successful bidder will be required to furnish and pay for satisfactory performance, payment and highways bonds.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Specifications must be paid on this project.

The Housing Authority of Baltimore City reserves the right to reject any or all bids or to waive any informalities in the bidding. No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the Housing Authority of Baltimore City.

HOUSING AUTHORITY OF BALTIMORE CITY
OLIVER C. WINSTON
Executive Director

OFFICIAL PROPOSALS

Bids: June 28, 1951

Water Distribution System Reinforcement

Sealed proposals for installing, complete and ready for operation, cement lined cast iron pipe, pipe fittings and appurtenances for the reinforcement of the water distribution system will be received by the Executive Manager of the Chester Municipal Authority at the Authority office, Fifth and Welsh Streets, Chester, Pa., up to 2:00 P.M., Eastern Daylight Time, Thursday, June 28, 1951, at which time and place the proposals will be publicly opened and read aloud.

Cast iron pipe, pipe fittings, jointing materials, encasement pipe, gate valves, tapping sleeves and valves, inserting valves and pressure reducing valves will be furnished by the Chester Municipal Authority. All other materials necessary to complete the work, including fire hydrants shall be furnished by the Contractor.

The work will be divided into three contracts as follows:

Contract No. 39 — Approximately 10,000 lineal feet of 20 inch diam. pipe and appurtenances in Front and Second Streets, from Fulton to Booth Streets and approximately 2000 lineal feet of 12 inch diam. spur connection piping, all within the City of Chester, Delaware County, Pa.

Contract No. 40 — Approximately 9,500 lineal feet of 20 inch diameter pipe and appurtenances in Second Street and Post Road, in the City of Chester and the Boroughs of Trainer and Marcus Hook, Delaware County, Pa.

Contract No. 41 — Approximately 10,000 lineal feet of 18 inch pipe and appurtenances in Concord Road from Duttons Mill Road to Engle Street, in Aston and Chester Townships, Delaware County, Pa. Also as a part of Contract No. 41 is the installation, at various locations in the distribution system, of miscellaneous appurtenances including one pressure reducing valve assembly and seven inserting valves varying in size between 20 inches and 30 inches.

Contractors may submit a proposal for any one contract any two contracts or all three contracts individually or he may submit in addition thereto a bid for all three of the contracts in combination.

Each set of contract documents, including plans and specifications, cover the work included in all three contracts, and may be examined at the office of the Chester Municipal Authority or at the office of Albright and Friel Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pa., on or after June 7, 1951, and copies thereof may be obtained at either office upon making a deposit of $40.00 for each set of documents. If the documents are returned in good condition within five (5) days after the opening of bids, the full amount of the deposit for one set will be returned to each actual bidder, and other deposits will be refunded with a deduction of $20.00 to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Chester Municipal Authority equal to five per cent (5%) of the amount of the bid must be submitted with the proposal.

The Chester Municipal Authority reserves the right to reject any or all bids or waive any informality, and to award each contract individually or all three contracts in combination, as may be deemed by the Authority to be to the Authority's best interest.

No bidder may withdraw his bid within thirty (30) days after the actual date of the opening thereof.

CLARENCE L. CONNER,
Executive Manager

Dated: May 17, 1951

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

TALENT SCOUTS
for the Construction Field

Construction men seeking employment and employers in search of talent will find PURKISS PERSONNEL the perfect agency for joining skill to opportunity. We are serving major projects here and abroad.

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CHickering 4-4084

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 41 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.
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REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED—AT once—City Engineer in the City of Beacon, New York. Must have had at least five years of progressively responsible experience in engineering work, plus graduation from an American University or College of recognized standing and must be eligible for professional engineering license issued by the State of New York. For full details write Lewis Bolton, Mayor, City of Beacon, New York, or Dutchess County Civil Service Commission, Court House, Poughkeepsie, New York. Entrance salary $6,000, immediate opening. Applications accepted from any eligible person in the United States.

POSITIONS VACANT

DESIGNERS, ENGINEERING Draftsmen for established consulting firm designing sewers, pumping stations, sewage treatment plants, water supply systems, etc. Layout and detail drafting on structures, piping, reinforced concrete. Structural and hydraulic computations, specifications. Give full particulars. Location, New York State. Our employees know of this advertisement. P-9755, Engineering News-Record.

WANTED: SUPERINTENDENT for Rock Quarry. Permanent position. Salary open. L. G. Everist, Inc., Sioux Falls, South Dakota.

CIVIL ENGINEERING Technicians: Laboratory and field men, experienced in soils, concrete and asphalt. Defense projects in East, Midwest, South. Forward complete details to Toledo Testing Laboratory, Toledo, Ohio.

LABORATORY AND Field Supervisor: Experienced in soils, concrete and asphalt, must be registered P.E. Furnish complete details to Toledo Testing Laboratory, Toledo, Ohio.

DRILLERS: EXPERIENCED in soil borings and rock drilling. Work located in Ohio and Michigan. Permanent work for qualified drillers. State age, experience and salary. Toledo Testing Laboratory.

ESTIMATOR AND Quantity Man: Permanent, industrial buildings, position northern New Jersey, state age, experience, salary desired and when available. P-9845, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: Industrial buildings, must be top-man, position northern New Jersey, state age, experience, salary desired and when available. P-9846, Engineering News-Record.

DRAFTSMAN OR engineer, mechanical, experienced on industrial piping and equipment, office and field work. Write P. O. Box 1106, Roanoke, Va.

ENGINEER, CIVIL, experienced on construction work in office and field. Write P. O. Box 1106, Roanoke, Va.

BOOKKEEPER, EXPERIENCED, with ability as typist. Write P. O. Box 1106, Roanoke, Va.

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P-9872, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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SUPERINTENDENT OF Operation: for municipal water system with experience in operation and maintenance of chlorinators, pumping stations, deep wells; installation of copper service connections; meter maintenance and testing. Ecuador, South America. Minimum 2 year contract, salary $8400. Send experience records, references, etc., Suite 52, 1737 H Street, N.W., Washington, D. C.

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland 15.

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SALES MANAGER with experience in engineering construction, road building field and knows how to handle distributors. An unusual opportunity with a growing concern. Headquarters Southern California. Replies confidential. Write completely — salary expected. SW-9944, Engineering News-Record.

(Continued on page 109)

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Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9735, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-9869, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

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P-9939, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9734, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-9805, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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P-9537, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED
SPECIFICATION WRITER

with at least 5 years' experience in writing specifications for heavy civil and structural engineering construction and associated mechanical, electrical, engineering and architectural components. Public Works experience desirable, but not essential.

MATERIALS ENGINEER

with at least 3 years' experience in laboratory and field testing of soils and materials of construction and concrete mix design.

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P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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(Continued from page 107)

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PW-9950, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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PW-9828, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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PW-9829, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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CONSTRUCTION SUPERINTENDENT, age 39, 22 years experience, highway, railway bridges, culverts and sewers. Available within 30 days. PW-9954, Engineering News-Record.

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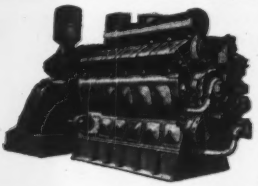

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625	Alco	6-12¼x13T	750	600	125	General Motors	3-268A	150	1200
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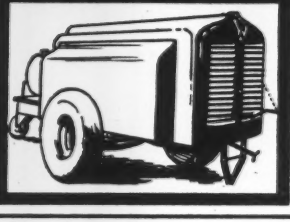

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Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd for 3500 Manitowac LBS #5763.
Esco 2½ yd cast weld dipper with bail & teeth

CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

Concrete Finishers

Jaeger type "L" double screed, 10½'-12½', rebuilt.
Heltzel 10'-12' finisher, rebuilt.
Blaw-Knox gas-electric 10½'-12½', rebuilt.
2 Koehring 10'-12', rebuilt.

Concrete Road Forms

830'—Truscon 7"x8" forms, with stakes.
1380'—Heltzel 7"x8" forms, with stakes.
1220'—Heltzel 9"x8" forms with stakes.
1430'—Heltzel 10"x8" forms, with stakes.

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Flynn surgrader 10'-12', rebuilt.
R.B. Fine Grader for 21' width, rebuilt.

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Cleveland formgrader, new condition.
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Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bucyrus-Erie 21W on C30 International chassis.
Bits—Stems—Bailers—Sockets—Etc.

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Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

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New Warco D76 tandem driven grader, 12' blade, V-type scarifier, 13.00x24 tires all around, 24,500 lbs., International UD14A diesel engine.
Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

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WE OWN THE EQUIPMENT WE ADVERTISE

NOW AVAILABLE!

1—D8 Caterpillar Tractor w/dd pcu and dozer		$5,500.00
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2—Super C Tourna pulls	Each	7,000.00
1—4000 Gallon Dart Sprinkler Truck—Diesel		9,000.00
1—400 KW Enterprise Dual Fuel Gen. Unit		35,000.00
1—21 Shank Southwest Scarifier		1,500.00
1—New Model HBL Buda Earth Drill		5,000.00
10—26.7 cu. yd. Southwest Bottom Dump Trailers w/200 HP Peterbilt Diesel Tractors	Each	16,500.00

Above equipment located at Republican City, Nebraska

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3—#12 Caterpillar Motor Patrols	Each	$7,500.00
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1—C86 LaPlant Choate Scraper		2,750.00
1—34E Ransome & Dual Drum Paver—Diesel		14,500.00
5—4 cu. yd. Dumpcrete Bodies—Maxon	Each	1,500.00
15—20 cu. yd. Western End Dump Trucks—Diesel	Each	7,750.00

All offerings subject to prior sale.

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HARLAN CONSTRUCTION COMPANY

Republican City, Nebraska — Phone—Republican City 101

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8" I	18.4#	40'
10" I	35#	40'
12" I	31.8#	40'/48'
15" I	42.9#	40'/48'

BEARING PILES

8"	x 36#	to	48#	30'/40'
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Brand New!
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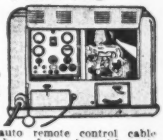

115v 60 cy. A.C. single ph. 5 K.W. Hobart, water cooled, 14 h.p. 4 cyl. Hercules engine. Remote Control, complete panel board with instruments, 150 ft. auto remote control cable with reel; 150 ft. #6 hvy. duty wire with reel; housed in metal case with replacement parts & tools. Cable with reels alone worth $400. Reg. price of unit $1900. Shipping wt. 1250 lbs. Our price, complete: f.o.b. Chicago **$895.00**

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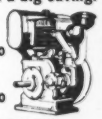

Model A.B., 1.7 to 3 H.P. Wt. 60 lbs. List Price, $90.00. Special Price.... **$76.00**

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NW 80D shovel, drag #12890
2—SFD Euclid End Dumps like new
9—18LDT Euclid Bottom Dumps
5—40FD Euclid End Dumps
1—Bucyrus Erie 22B w/4 fronts
Osgood 200 Backhoe drag
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3500 Manitowoc Hi-Lift shovel
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BROWNING—Mod. E, 40' boom, 8 ton hook block, Climax gas engine, all mounted on Mack chassis, 6-10:00 x 20 tires, completely rebuilt, reasonable.

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2 Complete paving units consisting of 2—34E Double Drum Ransome Pavers, one built in 1947 other in 1948.
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All equipment in like-new condition as has been cleaned, painted, and reconditioned for immediate use. Repair parts for all machines.

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2—Jaeger Model 2A3 double drum Dixie Special Hoist, complete for 3500 lbs line pull at 240 F.P.M. Powered with Wisconsin AP4 Engine. Price: f.o.b. Marquette, Michigan	1200.00
1—Hough Model DI front end loader with hydraulic bucket control, ⅝ cubic yard bucket included. Price: f.o.b. Marquette, Michigan	1150.00
1—LaPlant-Choate Model B-61 Hydraulic straight dozer for D6-60" tractor. Hydraulic pump is included. Price: f.o.b. Marquette, Michigan	1500.00
1—Foshee Hydraulic lumber carrier with 8.25 x 20 tires. Includes Hydraulic pump. Price: f.o.b. Marquette, Michigan	1500.00
1—Killefer Model 27R Rotary scraper. Price: f.o.b. Green Bay, Wisconsin	175.00

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For Model 95 Northwest Crane. Also same for Model 80-D Northwest. Will rent or purchase.

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DRYER: Allis Chalmers single shell, 10 ft. x 90 ft. heavy duty, plate thickness. 22.95 lbs. per sq. ft. complete with or without the following:
Coal fired furnace with Hoffman Firate, Firete Stoker, with grates, buckstays, all necessary steel, etc.
Dust Collector, Western Precipitation. Multiclone size 726.
Two size 25 Western scrubbers and spray eliminators.
Exhauster, Clarage #41, with or without 150 H.P., General Electric Motor, type I, form M, 695 RPM, serial No. 817360, 440 volt, 9 groove pulley.
One G.E. 200 H.P. Motor, 3 bearing type, 585 RPM, 2200 volt, model MIN691, serial No. 1420792, 11 groove pulley.
One A.C. Control Panel.
One Drum Control Panel.
One Drum Controller.
14—G.E. Resistor Boxes.
One Bristol Recorder model 431 Pyromaster.
One Leeds Northrup Recording Controller.
One Pug Mill or 12" dia. shaft paddle Mixer, 10'0" chain drive.
All located on Iron Range in Minnesota.

COAL CRUSHER: Jeffrey, Flextooth, size 24 x 42".

LOG WASHER: 25 ft., heavy duty type, with 2 logs, 6" x 6" x 3/4" angles, complete ready to operate.

COMPRESSOR: Worthington 2 stage, 29/18½ x 21, type DC2, 600 H.P. synchronous motor, 3 phase, 60 cycle, 440 volt, 180 RPM, 100 lbs. pressure, complete with auxiliary equipment. In operation now, available immediately.

BOOT BUCKET ELEVATORS: 2—63 ft. ¢¢, manganese steel chain, buckets 16" wide.

SCREW CONVEYOR: 12" x 22 ft. with center bearing, 87 RPM, capacity 30 TPH.

CHAIN: 400 to 500 ft. Jeffrey No. 3 malleable roller chain with DE-1 attachments every fourth link.

DIESEL MOTOR: 122 H.P. Caterpillar D13000 complete with clutch, V-belt pulley, and spare parts.

MAGNETIC SEPARATOR: Dings, Crockett type 12" belt, 250 volt, with 440 volt, A.C. operating motor.

LOG GRAPPLE: Blaw Knox, Jaws 42" wide, opening 8'9".

BLAST HOLE DRILL: Bucyrus Erie 27-T, diesel, 6-⅝" bit and tools.

WAGON DRILL: Ingersoll-Rand type D with X71 WD Drifter for 1-¼" steel with D-6-U hoist, mounted on steel wheels.

DRAG SCRAPERS, CRESCENT BUCKETS: 1—Sauerman 2 yd. Drag Scraper outfit complete, without 75 H.P. motor. 1—Sauerman ¾ yd. capacity complete with 30 H.P. motor. 1—Sauerman 1 yd. capacity complete with diesel motor. 1—Sauerman 100 H.P. minus motor.

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DERRICKS & HOISTS: 150 ton capacity, 180 ft. mast, 160 ft. boom, 65 tons @ 140 ft., with or without 125 H.P. American electric, 3 drum Hoist and 30 H.P. swinger. 1—15 ton Guy Derrick, 100 ft. mast, 90 ft. boom, with or without gas or electric hoist, double drum, with swinger. 2—15 ton Terry Stiff Leg, 75 ft. boom, complete with bullwheel, legs, sills, blocks, etc.

MINE HOISTS: Single and double drum 150 H.P. to 2500 H.P.

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2—3 Yd. Blaw Knox SX90 Roller Gate Wt. 2200#. $750.00 each

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1—6 Yd. Sauerman type SS1120 crescent with teeth. Wt. 6500# $1,800.00

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1—1½ Yd. Lorain Mdl 77 #9163 with 45' boom & center sections to make 80' with 20' jib. DI3000 Cat. diesel engine. Wt. 80000# $20,000.00

2—1 Yd. Northwest Mdl 4 #344, 3493, 40-60' booms, high gantry, 15' jib, Mdl. KS Wisconsin gasoline engines. Wt. 74400# $11,000.00 each

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1—10S Koehring Dandie Mixer, 4 cyl. air cooled engine, 4 steel wheels, side loader and water tank, wt. 3800#. $1000.00

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1—Mdl. 190 Rex single pumpcrete No. CP114. Main power plant 4 cyl. size 3⅛x4⅛", Waukesha engine. Remixing hopper powered by 4 cyl. 15 HP LeRoi. Max. vertical lift 110'. Capacity 25 to 30 cu. yds. per hour.

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45 ton G. E. diesel elec. locomotive
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Two Colby 50 ton gantry cranes
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1½ Blaw Knox clamshell buckets new
8¼ x 10 Clyde 3 drum steam hoists new
¾ yd Bucyrus 20-B diesel crane
5 new International T-D-24 tractors

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1—Porter 14 Ton 36" Ga Gas.
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2—50 Ton Hopper Cars—Excellent.
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CAT'R D-7 bulldozer 4T series, also w/scraper
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Osgood 200 crane	Diamond 24x36 crusher	Hughes Keenan Roustabout crane
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(As is) or reconditioned.

½ to 2 Cu. Yd.—
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With pipe Reconditioned and Guaranteed.
At bargain prices *For immediate sale*

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1 Butler three compartment Batch Bin, 66 C. Y. or 100 ton capacity, with batching scales.

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Link-belt Shovel, diesel powered, model LS80.
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Ingersoll-Rand Compressor, 315', on steel wheels.

WANTED
Jaw crusher 18x36.

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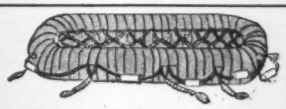

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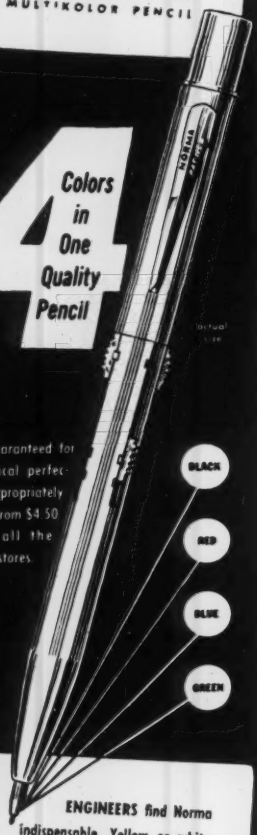

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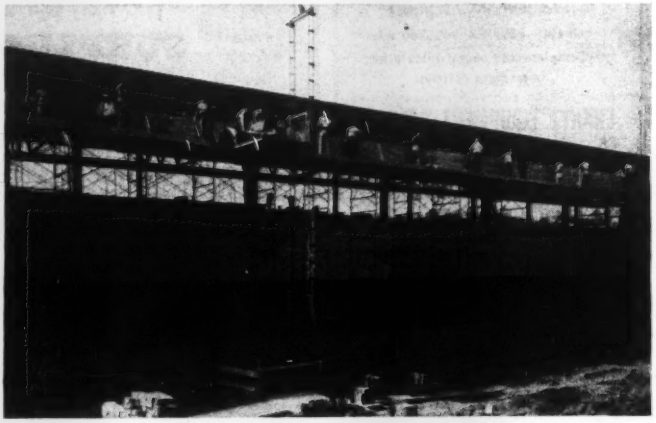

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(Continued on page 120)

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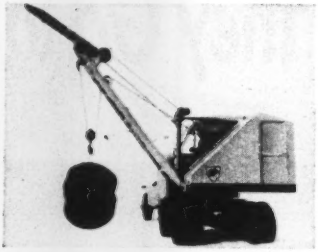

Crane adaptor for backhoe

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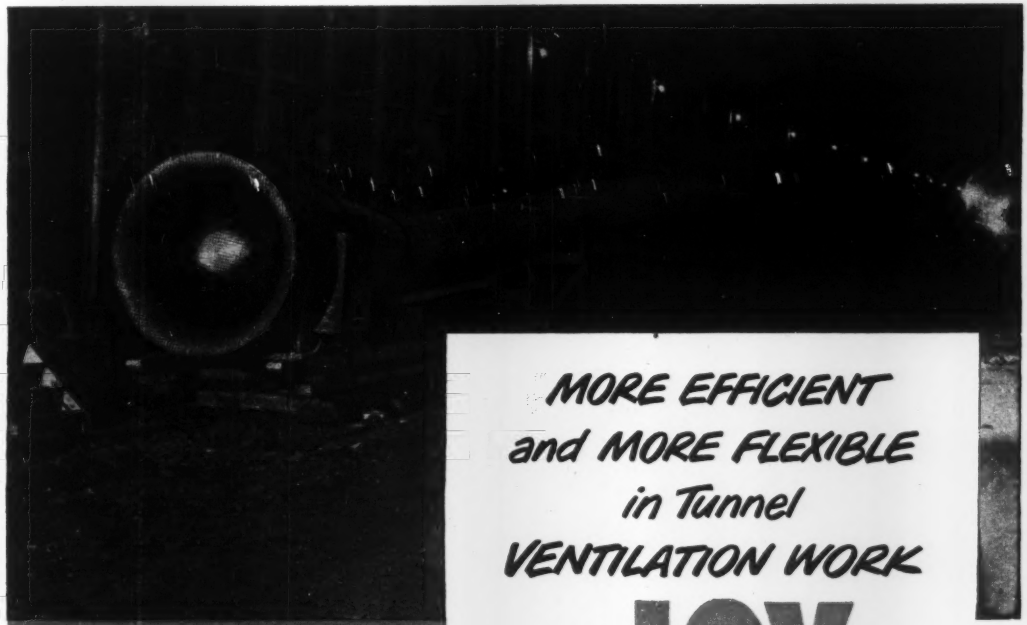
(Continued on page 122)



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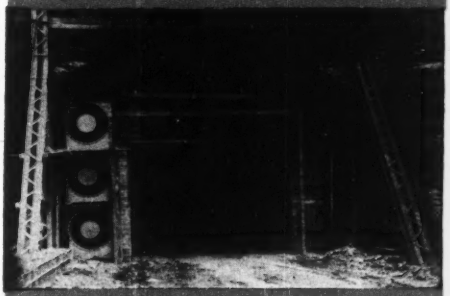

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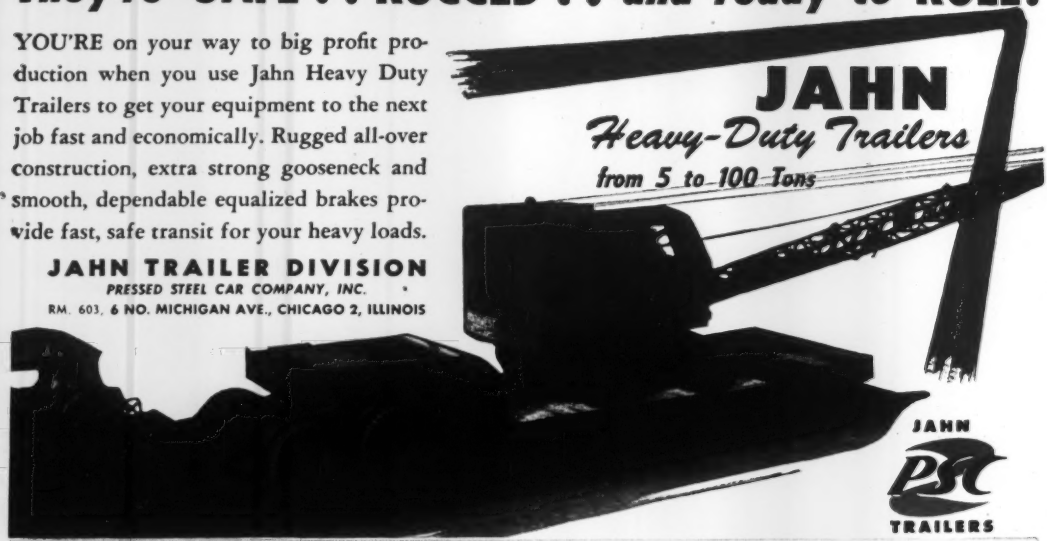

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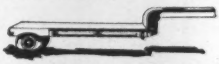
Tandem Axle Tilt Trailers


Single Axle Trailers

GRIFFIN has dried thousands of them! Our **WELLPOINT SYSTEMS** and know-how let you "work dry"—at lower cost!

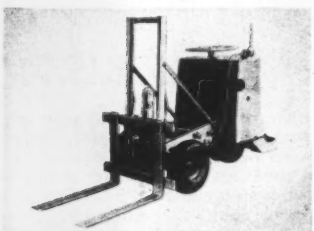
FREE* HANDBOOK

BE SURE: Let us estimate dewatering costs for your next job.

GRIFFIN WELLPOINT CORPORATION
881 East 141st Street, New York 54, N. Y
Please send me free copy of "WELLPOINT SYSTEM in Principle and Practice."
Name.....
Title.....
Firm.....
Address.....

Clip this coupon to your letterhead. FREE to Engineers and Contractors, only. Regular price to all others, $1.50.

are supported by the lightweight glass fibers. Roof-Shield can be applied directly to worn built-up roof surfaces with a minimum of patching and preparatory labor. It is applied by brush or spray. The glass fibers and glass yarn run in random directions resulting in a non-rotting membrane that stretches in any direction.—ADDEX CORP., DEPT. 55A, 2130 E. 105TH ST., CLEVELAND, OHIO.



Fork-lift attachment

Attachment for Moto-Bug powered wheelbarrow is a power-driven fork lift. It has a 1,000-lb lift capacity and raises loads to a height of 30 in. Forks tilt to the rear when being raised and are adjustable to a maximum width of 33 in. Standard forks are 20 in. long; 30-in. forks are optional. Total weight of the Moto-Bug with fork-lift attachment is 1,400 lb.—KWIK-MIX CO., SUBS. OF KOEHRING CO., PORT WASHINGTON, WIS.

Materials-handling pump

Air-operated double-acting pumps are designed for use with spray or flow guns including those used for fine finishing work. They handle all materials from thinners, enamels, lacquers, and paints to adhesives, sound deadeners, heavy roofing materials, and protective coatings of all kinds. The pumps operate directly from original shipping containers. Materials pressures as low as 3 lb can be maintained.—BINKS MFG. CO., 3122 CARROLL AVE., CHICAGO 12, ILL.

Psychoda-fly killer

Chem-Larv compound when added to liquid sewage is said to form a true solution that penetrates into the zoogleal film on the rocks at trickling-filter sewage-treatment plants to kill the larva and pupa of the Psychoda fly. Applied to the dosing tank, Chem-Larv is light in odor and requires no special handling equipment.—CHEMICAL INSECTICIDES CORP., 57 THIRTEENTH ST., BROOKLYN 15, N. Y.

Want to Move a Mountain in a *Hurry?*

● The equivalent of a mountain must be moved in a few years to produce a profitable operation in many mines, quarries, coal stripping operations and big construction jobs.

If your requirements call for several years of high-yardage production in the toughest kind of digging, you'll want to know about the MARION 151-M.

It was developed expressly for companies that need to get big jobs done quickly and dependably. Examine the 151-M in detail—see its rugged, heavy-duty electrical system—its sheer strength and size—its record of dependability in the heaviest kind of work. Your nearest MARION sales office can give you the details—or contact the sales headquarters at Marion, Ohio.

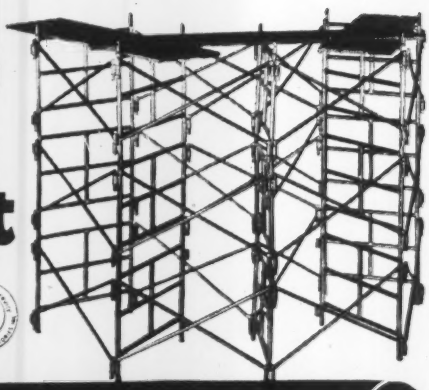
MARION POWER SHOVEL CO.
MARION, OHIO, U. S. A.

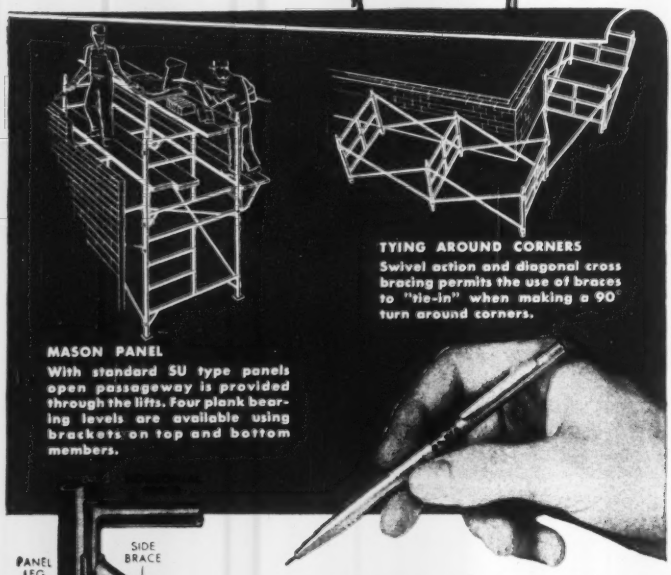
OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

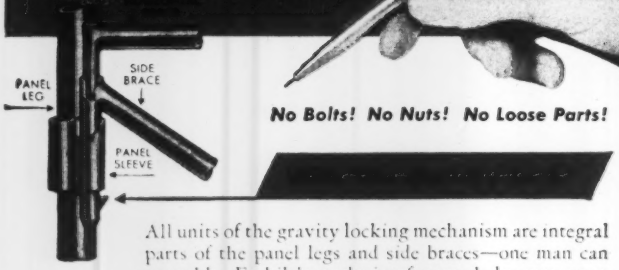
from 3/4 cu. yd. to 45 cu. yds.

On Any Scaffolding Job . . .

PLAN your SAVINGS with UNIVERSAL Ezebilt SCAFFOLDING




TYING AROUND CORNERS
Swivel action and diagonal cross bracing permits the use of braces to "tie-in" when making a 90° turn around corners.
MASON PANEL
With standard SU type panels open passageway is provided through the lifts. Four plank bearing levels are available using brackets on top and bottom members.



No Bolts! No Nuts! No Loose Parts!

All units of the gravity locking mechanism are integral parts of the panel legs and side braces—one man can assemble. Ezebilt's exclusive feature helps you erect faster and more economically—just put the units into position and the scaffolding is assembled.

Ask about "ENDLOK" Tubular Scaffolding for difficult and unusual applications.
Distributors throughout the country—Write for Complete Descriptive Catalog

UNIVERSAL MANUFACTURING CORP.
World's Largest Producer of Steel Panel Scaffolding
230 NORTH STREET • ZELIENOPLE, (PITTSBURGH DISTRICT) PA.
For Tubular Towers Catalog—Write our AMERICAN TUBULAR ELEVATOR CO. DIVISION

MANUFACTURERS' PUBLICATIONS

Equipment—operator's guide—Pocket-size manual is a guide for the operation and care of Direct-Acting hydraulic controls for P&H cranes and shovels. This 28-p booklet contains complete information on the system and describes correct procedure for dismantling, adjusting, and replacing parts. Identification of parts is made easy by numerous keyed photographs and cutaway drawings. A 4-p foldout diagrammatic illustration shows the entire hydraulic system.—HARNISCHFEGER CORP., 4404 W. NATIONAL AVE., MILWAUKEE 14, WIS.

Block insulation—Superex block insulation is the subject of a 4-p folder. Featured is a description of the economic advantages of this material and its outstanding properties. Technical data cover conductivity and heat loss and recommended thicknesses. Special shapes are illustrated.—JOHNS-MANVILLE, 22 E. 40TH ST., NEW YORK, N. Y.

Aggregate spreader—Paver-type aggregate spreader is described in detail in this 12-pager. Catalog SPS-1 describes the various types work to which the spreader can be adapted; lists its principal features and advantages; describes its method of operation; and provides detailed information on the various construction features and how they contribute to the over-all operation of the machine. In addition to complete specifications, the bulletin contains many on-the-job photographs and close-ups of component parts.—THE JAEGER MACHINE CO., 200 W. SPRING ST., COLUMBUS 16, OHIO.

Bay City excavators—Twenty-page catalog illustrates and describes the Bay City ¾-yd series crawler-mounted shovel, crane, dragline, clamshell, and hoe. It features a description of the heavy-duty design and construction of this convertible machine for excavating, erecting, and material handling. Machinery assemblies, parts, and attachments are illustrated and described in detail.—BAY CITY SHOVELS, INC., BAY CITY, MICH.

Stud welding—Booklet (No. 4-51) shows fundamental operating principles of the stud-welding process and typical applications of it. It features a description of how stud welding can be used to eliminate drilling, tapping, and hand welding. Complete

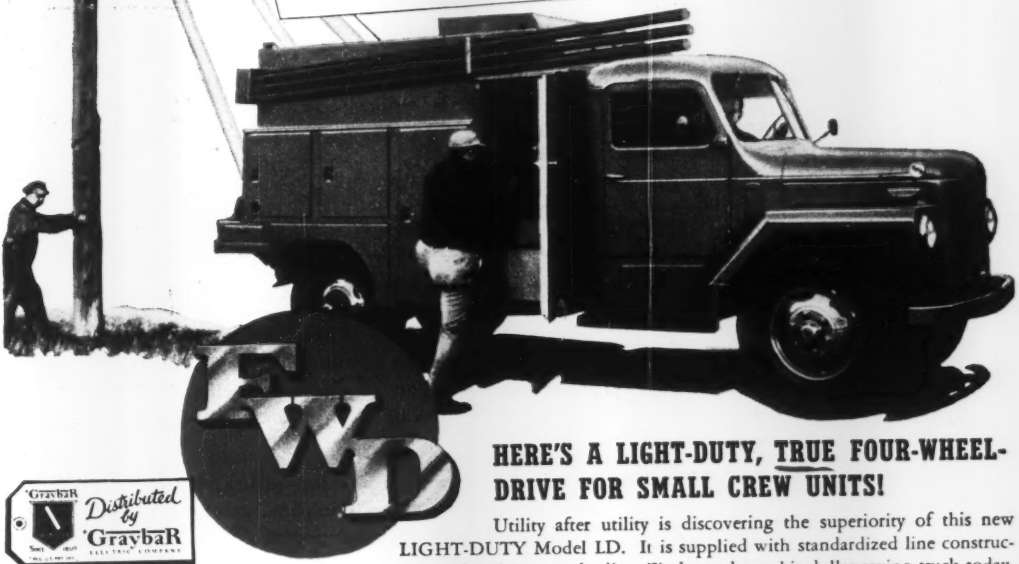
(*Continued on page* 129)

You Choose More than a Truck when you Choose an FWD

YOU CAN RESTORE SERVICE FASTER . . . MEET CONSTRUCTION SCHEDULES. "Weather and terrain are no problem. FWDs go where other trucks won't . . . *work* when others can't. Teamwork is tops because we have *matched combinations* of truck and equipment to fit the job."

YOU GET LOWER MAINTENANCE AND LONGER TRUCK LIFE

"FWD's proper distribution of load and power means less strain. Less strain means longer wear—fewer repairs. FWDs give us up to twice the life of ordinary trucks."



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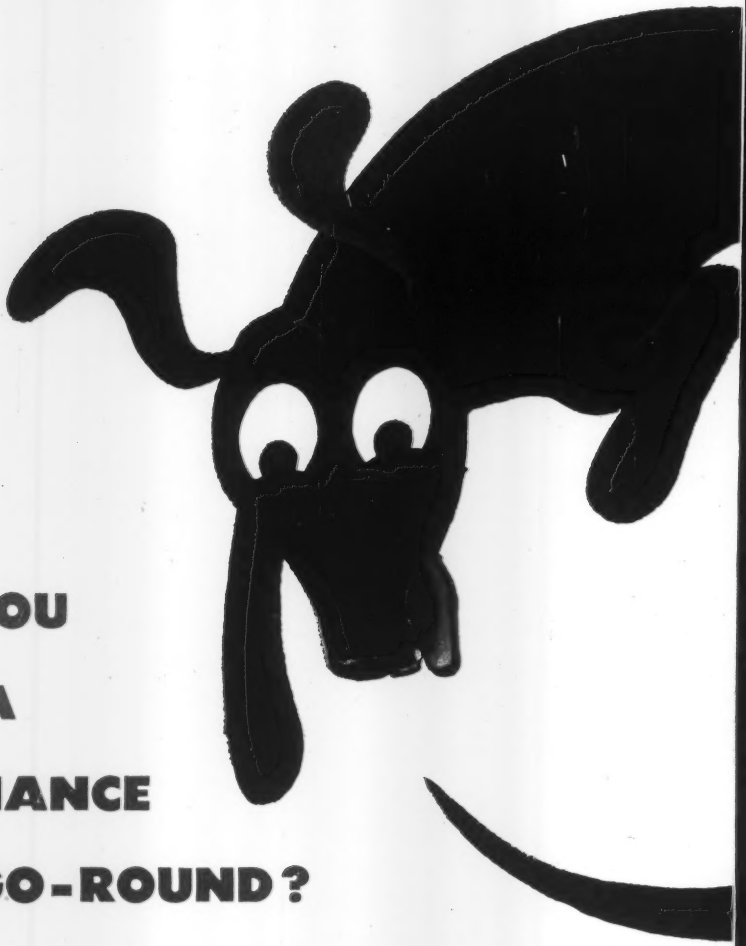
HERE'S A LIGHT-DUTY, TRUE FOUR-WHEEL-DRIVE FOR SMALL CREW UNITS!

Utility after utility is discovering the superiority of this new LIGHT-DUTY Model LD. It is supplied with standardized line construction and maintenance bodies. Find out about this dollar-saving truck today. THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wisconsin, Canadian factory—Kitchener, Ont. *World-Wide Sales and Service.*

Built by the Makers of America's Foremost Heavy-Duty Truck



ARE YOU ON A MAINTENANCE MERRY-GO-ROUND?

Correct Lubrication will cut your costs . . . reduce repairs, stretch periods between overhauls

Are your units in the shop more than you'd like them to be? If so, better check your lubrication set-up to help cut downtime. For lubrication is far more than just "oil and grease." It's knowledge of your machines and their exact lubrication requirements. It's use of the *right* lubricants—and knowing how to use them most effectively.

You get both specialized knowledge and top-quality products with Socony-Vacuum *Correct Lubrication.* It's a complete, carefully planned program of lubrication—tailor-made for your particular equipment and operating conditions. That's why it helps increase efficiency, reduce repairs and overhauls, cut maintenance and lubrication costs.

For all the benefits of *Correct Lubrication*, call in your Socony-Vacuum Representative.

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Here's Practical Help For Contractors . . .

Socony-Vacuum gives you . . .

- Help on maintenance problems.
- Individual, tested lubrication schedules.
- Advice on correct application of lubricants, proper handling and storing.
- One source of supply—available everywhere.
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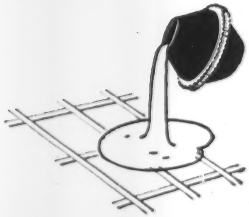
1. **DELVAC OILS**—for all gasoline and automotive-Diesel engines.
2. **MOBILUBE GX**—for all enclosed gears—manually operated transmissions, rear axles and final drives.
3. **MOBILGREASE**—in grades and types for proper lubrication of all chassis parts and engine accessories.

CORRECT LUBRICATION *for Contractors*

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC.
MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION

Make First Pavements *Last* with American Welded Wire Fabric



PARRIS AVENUE PAVEMENT CROSS SECTION

THESE PAVEMENTS were laid on 43rd Street in the month of June, 1924, and on Parris Avenue, both in Indianapolis, Indiana, in the month of October, 1923. The unretouched photos show that both are still in first class condition in the year 1950. The diagrams show details of construction, which, except for variations in width and thickness, are the same as those used in the latest interurban highways and city streets.

43rd STREET PAVEMENT CROSS SECTION

THE two streets illustrated here were paved with concrete, reinforced with American Welded Wire Fabric, in 1923 and 1924 respectively. They are still, as you can see, in first class condition. And on hundreds of thousands of miles of concrete highways and streets all over the country, American Welded Wire Fabric reinforcement also assures long years of trouble-free service.

U·S·S American Welded Wire Fabric has definite structural superiority to other forms of concrete reinforcement. It distributes the strength of steel evenly throughout the concrete, fortifies the slabs against all-directional stresses, provides positive control of any cracking that may occur and forms a secure bond with the concrete.

When next you consider paving, be sure you are fully informed upon the superior riding qualities, safety and durability of concrete, reinforced with American Welded Wire Fabric. And remember, on a cost per year basis it is the most *economical* pavement for streets and highways.

Many standard designs and sizes of American Welded Wire Fabric are now readily available from jobbers' and dealers' stocks, supplemented by prompt mill shipments to identified projects. Our technical staff will be glad to consult with you regarding your individual requirements. Literature which contains valuable information is yours for the asking. Just drop a line to our nearest sales office.

You use less concrete, less steel (of a non-critical type) for slabs of comparable strength with this modern fabric reinforcement. This conservation of materials, plus savings in construction time and cost, makes the use of American Welded Wire Fabric more important than ever now—when every hour, every dollar saved is an important contribution to the all-out mobilization effort.

AMERICAN STEEL & WIRE COMPANY
GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS

TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Every concrete paving job needs

USS

AMERICAN WELDED WIRE FABRIC
reinforcement

UNITED STATES STEEL

information is listed for KSM studs and stud-welding equipment.—KSM PRODUCTS, INC., MERCHANTVILLE 8, N. J.

Roof repairs—Bulletin is designed to assist in determination of exact condition of building roofs and in planning repairs. Form 102-7 contains illustrations of virtually every type of roof damage. It explains how and why roofs deteriorate and indicates trouble spots where the first danger signs appear. Patching and leak-stopping methods are described in full detail. Also included and completely covered are means of resurfacing and renewing old roofs.—THE MONROE CO., INC., 10703 QUEBEC AVE., CLEVELAND 6, OHIO.

Caterpillar catalogs—Scrapers and graders are the subject of two new Caterpillar catalogs. Form 30177 describes digging, hauling, and spreading with scrapers. It lists "Cat" scraper design, haul features, dozer-type ejection on the fill, spreading, and open-top bowl design for easy shovel loading. Form 30158 emphasizes the fact that more than 90% of all Caterpillar graders ever produced are still at work. The booklet features the history of research, engineering, testing, and on-the-job experience of motor graders.—CATERPILLAR TRACTOR CO., PEORIA 8, ILL.

Forged-Steel fittings—Comprehensive catalog describes a complete line of forge nozzles, welding necks, and large-diameter flanges. Also included in this catalog are data covering standards of the Tubular Equipment Manufacturers Assn. "Modern Flange Design", a special publication, is incorporated for distribution as a part of Catalog 501.—TAYLOR FORGE & PIPE WORKS, INC., P. O. BOX 485, CHICAGO 90, ILL.

Concrete mixers—Printed copies of concrete mixers (construction mixers and pavers) (export classification), Commercial Standard CS164E-50, are now available, reports the Commodity Standards Div., Office of Industry & Commerce, U. S. Dept. of Commerce. Proposed by the Mixer Manufacturers Bureau of the Associated General Contractors of America, Inc., this commercial standard gives general and detail requirements for tilting and nontilting mixers in sizes ranging from 3½ to 112 ft, and for 16, 27, and 34-ft paving mixers. The standard covers safety requirements, definitions, and nomenclature of useful terms. Cost of the booklet is 10¢.—SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON 25, D. C.

1 of 10 Reasons Why UNIT is a Better Machine

The UNIT 1020 — ¾ Yard Shovel furnishes economical and dependable service on every digging operation. Constructed to operate as a complete unit, its fewer working parts reduce replacement, operating, and maintenance costs.

Drop-forged parts are used throughout in the construction of UNIT equipment. Forgings are remarkably free of concealed defects and have fatigue-resistant qualities which assure uniform toughness in these parts. The front legs of the "A" frame and the end connections are one-piece drop-forgings, built to withstand the great strains imposed in digging or lifting operations. Forging also imparts a flawless grain structure to steel, thus giving it greater strength to accommodate enormous compressive stresses. For this reason, ALL spur and bevel gears, boom-hoist worm, power take-off drive worm, turntable hook-roller crawler-rollers, and many other equally important parts, are drop-forgings on UNIT Cranes and Excavators.

7th of a series of 10 ads describing outstanding UNIT features.

UNIT CRANE & SHOVEL CORP., 6315 W. Burnham St., Milwaukee 14, Wis., U.S.A.

Crawler and Mobile models — ½ and ¾ Yd. Excavators. Cranes up to 20 tons capacity.

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SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

Stang WELLPOINT SYSTEM

For KNOW-HOW • ENGINEERING • SUPERVISION • EQUIPMENT • to keep jobs DRY

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

JOHN W STANG CORPORATION

2 Broadway, New York 4, N. Y. — 2123 S. 56th St., Omaha, Nebr. — 8221 Atlantic Ave., P. O. Box 631, Bell, Cal.

COMMENT
from the
BUTLER ENGINEER

June, 1951

"No! No! Senor!" (Spanish For "No Soap!")

Even though I'm a conservative engineer, I can think of only one word to describe a Butler Ready Mixed Plant erected in Havana, Cuba: "Terrific!"

That plant had everything - including - so help me, a mahogany floor for the batching platform. It was erected right in the middle of downtown Havana. Concrete yard and approaches. "Magnifico, senores!" Came the great day of the formal opening. Flags flying. Airplanes roaring overhead. Crowds cheering. Everything ready for the push-button ceremony to start the plant. Suddenly came word from the city authorities. "No. Nix. Positively not. No Ready Mixed Plant in downtown Havana!" *So you think you got troubles?*

•

Well, here's the happy ending. The city bought the land, paid for dismantling and re-erecting the plant. And paid for the new site, too!

•

Writing of the tropics reminds me of the Arctic. Butler's there, too. A complete Butler Roadbuilders Plant shipped north by rail until the tracks ended in a snow drift. After that it was "weasled" across the snow and ice way up beyond the Arctic Circle. Just in case you don't know — and I didn't — a "weasle" is a snow going jeep. Operates on a crawler track. Speaks well for portability in Butler design, doesn't it?

•

And the only Ready Mixed Plant in England is a Butler, too. It's a great attraction. In spite of austerity and gasoline shortages, Britons come from all over the country to watch it. They're used to 3 and 6 bag mixers — some as much as 50 years old.

See you in August,

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

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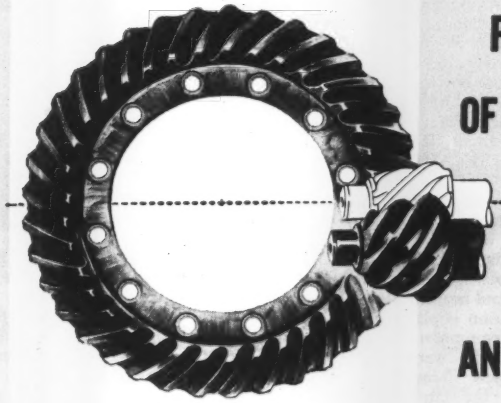
TIMKEN-DETROIT

HYPOID

HEAVY-DUTY AXLE GEARING



PROVED BY BILLIONS OF MILES OF ON-THE-JOB OPERATION— UNDER ALL LOAD AND ROAD CONDITIONS!

Today's heavy demands on motor trucks call for *modern* equipment—designed and built to stand the rugged pace of present-day conditions. And the biggest and most important difference between *truly modern* trucks and ordinary trucks is Timken-Detroit Axles with proved Hypoid Gearing!

Engineered to improve performance and reduce maintenance, Hypoid Gearing incorporates fundamental advancements in modern axle gearing. The *offset* Hypoid pinion is bigger and stronger.

Bearings are bigger. More teeth are in contact, reducing loading per unit of contact area. Torque-transmitting capacity is increased. Slower gear ratios are practical without loss of strength. What's more, this dependable heavy-duty axle gearing—developed and produced by Timken-Detroit—has been proved by billions of miles of actual operation!

Make sure *your* new trucks are equipped with advanced-design Timken-Detroit Axles with Hypoid Gearing!

SEND FOR THIS INFORMATIVE, ILLUSTRATED BOOKLET ON HYPOID GEARING TODAY! IT'S FREE!

TIMKEN *Detroit* **AXLES**

A PRODUCT OF THE TIMKEN-DETROIT AXLE COMPANY
DETROIT 32, MICHIGAN

The Accepted A D A Standard

TRADE MARK REGISTERED

PLANTS AT: DETROIT AND JACKSON, MICH. • OSHKOSH, WIS. • UTICA, N.Y. • ASHTABULA, KENTON AND NEWARK, OHIO • NEW CASTLE, PA.

Letter from THE CRESCENT CITY

New Orleans, after years of planning and effort, is beginning to show visible signs of expansion and progress resulting from a five-year municipal improvement program.

The keystone of the over-all public improvement plan is the Union Passenger Terminal and grade separation program whose value in new facilities to New Orleans exceeds $50,000,000. This program will accomplish three major benefits for the city. It will provide for the consolidation of all railroad passenger train facilities, eliminate grade crossings and effect the closing of a portion of the New Basin Canal.

Set into motion by the $23,500,000 bond issue of 1947, this project stands midway towards completion. Ground will be broken on the Union Passenger Terminal by midsummer and the terminal is scheduled for completion in early 1953.

• **Progress to date:** (1) In the station project zone, the new express building is now in use; (2) temporary platforms and track facilities on the lower side of the old station are 100 percent complete and in use; (3) permanent platforms are now under construction; (4) track work is 75 percent complete and mail handling facilities 90 percent; (5) in the coach yard zone, the power house has been completed and coach facilities are 20 percent on the way to completion; (6) in the engine facility zone, the diesel repair shop is 40 percent built; wash and locker building is completed; cinder conveyor is 90 percent constructed and fuel oil facilities are 80% complete.

In the grade separation plan, four overpasses have been built at a total cost of $3,300,000. Six other grade separation projects are under construction and one is about to begin. Thirteen more are ready for construction or under design.

An important part of this Union Passenger Terminal and grade separation plan is the closing of the New Basin Canal. Once a commercial necessity for the city, this waterway, dug with pick and shovel by immigrant labor and completed in 1835, contributed largely to the trade of New Orleans and aided greatly in the upbuilding of the new part of the city. But it has outlived its usefulness and in recent years has been termed a liability. The filled-in portion of the canal will be used in part for the Union Passenger Terminal approach tracks and in part as a roadbed for a proposed federal and state highway.

Closely interlocked with the development of plans and construction of the new Union Passenger Terminal are designs for this proposed federal and state highway, known as the Ponchartrain Expressway. Two of the grade separations are part, or will be part, of the new expressway. Plans are completed for one of the interchanges involved and construction should start soon. When completed the Ponchartrain Expressway will provide modern high-speed access to the heart of the city from outlying districts and main rural highways—at the same time providing for a potential heavy volume of traffic. This project will cost about $15,000,000.

• **Canal-covering**—Another plan includes four canal-covering projects that will, when completed, triple drainage capacity, as well as provide valuable rights-of-way for street widening and beautification. Reservoir expansion is planned and new generator equipment has been installed in the water purification plant. A new 50-inch water main, largest in the city's history, has been laid crosstown recently to provide greater water pressure.

Key arterial streets are being widened and extended to expedite the city's ever-increasing traffic. Bottlenecks have been broken by bridge building and bridge removals. About 50 miles of paving, widening and resurfacing projects have been completed, in which 34,000 tons of asphalt were used. Also 978 miles of streets have been graded, 415 miles of streets received calcium chloride and oiling; and 91,579 cu yd of shells were applied.

• **A new approach**—Other improvements ahead include construction and completion of better approaches to the port. For years the Harvey lock in the Intercoastal Canal slowed traffic into the Port of New Orleans. Now the U. S. Engineers have just completed another lock three miles down the Mississippi River designed to double the volume of traffic in the canal, cut waiting time for the lock in half.

Already completed for the Port of New Orleans: the new International Trade Mart—a reconverted mill-type building of five stories streamlined into a modern display case in 1948 at a cost of $1,500,000. Here the port has facilities to display the thousands of articles which pass through it, both import and export.

Improvement of rail and highway facilities will, combined with the new lock and the trade mart, help boost the ever-rising tonnage of merchandise shipped from the Crescent City.

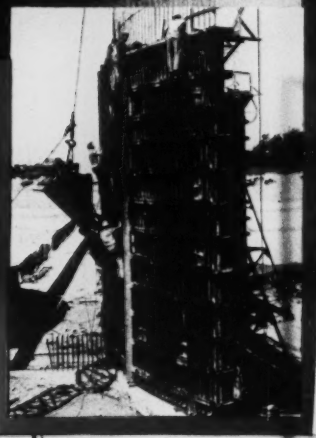
Other completed public projects include five new health centers.

A few of the planned projects are the Mississippi River Bridge, a new Civic Center and a new City Hall.

With all this in mind, it is apparent that New Orleans is well on the way to becoming a more modern and progressive city enjoying the distinction of being the center of industrial and commercial activities in the South.

GRADE SEPARATION—Shown is construction on the North Broad Ave. underpass of the New Orleans Terminal R.R. Already four overpasses have been built at a cost of $3,300,000. Six other grade separation projects are being built and one is ready to start. Thirteen more are either ready for construction or being designed.—Leon Trice photo.

South Side Sewage Treatment Plant, Oklahoma City, Oklahoma. Engr.—Benham Engineering Co.; Contr.—Earl W. Baker & Co.—both of Oklahoma City, Oklahoma.



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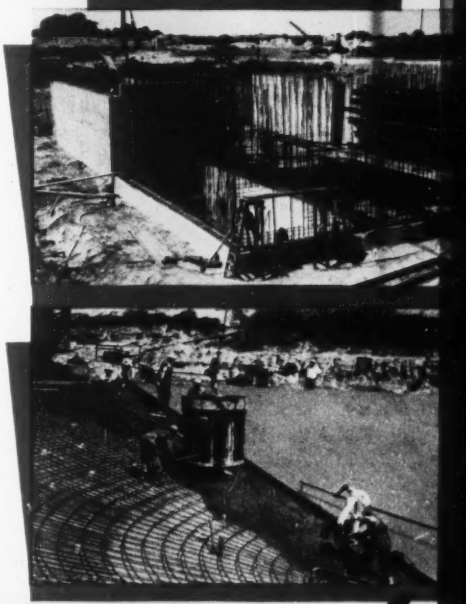

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This section of White Horse Pike in New Jersey was widened and resurfaced with a two-course Fine-Aggregate Bituminous Concrete pavement by Eastern Engineering Company of Atlantic City.

New Jersey specifies FABC

White Horse Pike is one of New Jersey's busiest east-west highways, linking Camden with Atlantic City, world-famous ocean resort. When a large mileage of the Pike called for resurfacing, the State specified Fine-Aggregate Bituminous Concrete paving, commonly known as FABC. Year after year, this dense, rugged, joint-free type of hot-mix paving has been constructed on important streets and highways throughout the State. Its ability to absorb punishing impact with a minimum of maintenance has become well-established.

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